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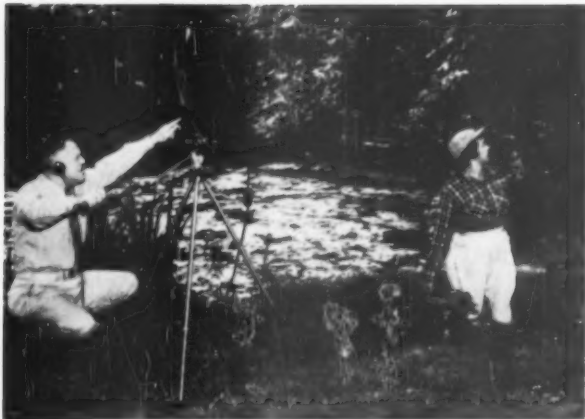
JANUARY-FEBRUARY 1953

Magazine

FIFTY CENTS



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Volume 55, Number 1, Formerly BIRD-LORE

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AUDUBON MAGAZINE is published bimonthly by the National Audubon Society. Subscription \$3.00

per year in U.S., its possessions and Canada; 2 yrs.—\$5.50; 3 yrs.—\$7.50; Foreign, 1 yr.—\$3.25. Checks and money orders should be made payable to AUDUBON MAGAZINE. Editorial and advertising office, 1130 Fifth Avenue, New York 28, N. Y. Reentered as second-class matter April 29, 1942 at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright, 1953 by the National Audubon Society. Postmaster: If undeliverable, please notify Audubon Magazine on form 3578 at 1130 Fifth Avenue, N. Y. 28, N. Y.

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Letters

Gravel Mining Regulations

I sympathize with Mr. Waters' disappointment,* but he and his friends need not despair because they can eradicate abuses that come from "gravel mining," as it is commonly called. Recently, the City of Norwalk (Connecticut) enacted regulations for gravel mining. Legal objections to ordinances or regulations were gradually overcome when at first there was dispute over the proper law-making body entitled to pass appropriate ordinances or regulations. While this dispute was going on, groups of people appeared in increasing numbers before our Council and zoning authorities in protest against the creation of eyesores caused by careless and selfish removal of topsoil and fill. Progress is not impeded, and is in fact encouraged thereby, but all soil removal is now carefully regulated.

Communities adjacent to Norwalk have had similar protective regulations for many years. A copy of our zoning laws and other helpful suggestions will be furnished, I am sure, if interested parties will write either to the Mayor, or the Zoning Commission of Norwalk.

HARRY M. LESSIN

Norwalk, Connecticut

Cooked to Order

Dick Neidhardt's letter in the September-October, 1952 issue of *Audubon Magazine* is interesting but birds picking insects off car radiators is not unusual.

The house sparrow is very common on the streets of some California cities. I have noticed them fly from car to car along the curb and alight sometimes on the radiator of a car that had just parked. Finding the radiator too hot, they hop to the bumper, take a good look back at the radiator, then fly to the next car.

We readers would be quite interested in the oddities of birdlife noted by other readers of *Audubon Magazine*. May we hear from them through your "Letters" column.

LEWIS F. JOHNSON

Auburn, California

A Flicker Problem

My house is about three years old and shingled with wood shingles. A flicker has bored holes in the shingles on the northwest side of the house near

* See Mr. Joseph H. Waters' letter, "Topsoil Removal and Wildlife," *Audubon Magazine*, September-October, 1952, p. 278.—The Editors



Photograph of flicker by Donald Dickey

the roof. As often as we chase him, he always returns after a few hours to continue his destruction. Some of the holes are quite large. There are seven apple trees on our property besides other trees where he could find insects.

I've been told that woodpeckers have been known to bore holes in barns to get inside for the winter. It seems a bit far-fetched to me that he is trying to gain entrance to the house.

I should be very grateful to know why he selects the house to peck away and what can we do about it? We like the wild birds and encourage their staying about, but not to the extent of destroying the outer wall of our house.

EMMA SCHROEDER
Huntington, New York

Editors' Note: We doubt very much if the flicker that has bored holes in the shingles is after insects. In the fall, flickers often drill holes in barns or under the eaves of houses where they can roost, protected from cold winds and storms on winter nights. If a flicker excavates a hole in a building, either in fall for winter quarters, or in spring for a nesting place, it is quite likely that there are no dead tree stubs about where the bird ordinarily drills a hole for its home. Putting up one or two flicker nesting boxes in the yard often helps, and may prevent the damage to buildings that the "homeless" flicker may cause.

A Hummingbird Flower of Texas

Audubon Magazine for July-August, 1952 has an article by Charles E. Mohr telling of plants that will attract hummingbirds. I can give you another that is a favorite of the ruby-throat which

is the only hummingbird I have seen around Houston. The plant is the *Malvaviscus*, commonly called here the Spanish apple. The flowers are similar to hibiscus in shape and are red, but they are very small as compared to the hibiscus. The flowers are followed by the seed, which is a small red apple that I find is edible.

A long line of these flowers, which we found in the woods and I brought into my garden, follows the back line of our house. Kept watered and in good soil, they grow very tall, as high as 10 feet.

There are always one or more ruby-throats about these flowers during their blooming season. This *Malvaviscus* may be native here for it is found throughout our woods along streams.

Mrs. A. P. Todd

Houston, Texas

Editors' Note: Mrs. Todd's *Malvaviscus* is probably the Texas mallow, *Malvaviscus drummondii*, a large shrub to a small tree, which usually grows about nine feet tall, and has showy red flowers about one inch long. It is a native of Mexico and the extreme southeastern United States where it ranges from the southern and east-central part of Texas, east through southern Louisiana, southern Mississippi, and southern Alabama, to the northern part of Florida. Hummingbirds visit the flowers of certain other members of the family Malvaceae, for example, Hibiscus and its many varieties, and hollyhocks, Althea, but this is the first report we have had of its use of *Malvaviscus*. Perhaps other readers will take note of the flowers visited by hummingbirds and send us additions to our list.

Egrets and a White Crow

I enjoyed your article, "A Glance Backward," (July-August, 1952). Reading about the egrets reminded me of the one I saw in August, 1951. While visiting at Lexington, Kentucky last year, I saw a snowy egret at a small lake on the farm where I was staying at the time.

I also understand that an albino crow was shot at Nicholasville, Kentucky last summer. The bird is now mounted and is on display at the University of Kentucky at Lexington.

THOMAS PERKINS
River Rouge, Michigan

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● High Tide on the Estuary

Illustrations by the author

THE "cruel crawling foam" of the rising tide racing across the sands of the Cheshire Dee brought Mary to a watery grave when she went forth to call home her lost cattle. Just how the tale goes I only vaguely remember, but it came to mind when I crossed these same sands of Dee last October.

Our horse, plodding into the cold wind and fine driving rain pulled us in a gayly-colored, two-wheeled cart over the vast stretch of water-sculptured sand toward Hilbre Island. At this point, at the edge of the Irish Sea, where the Dee separates England from the gray hills of Wales, the estuary is nearly five miles wide. Not far away is the great city of Liverpool. At low tide the combined estuaries of the Dee and the adjacent Mersey form at least 50 square miles of exposed sand and mud flats, a feeding place for tens of thousands of clamoring shorebirds. But when the flood races in, these same flats may be covered by as much as 30 feet of rough water. I wondered what would be the fate

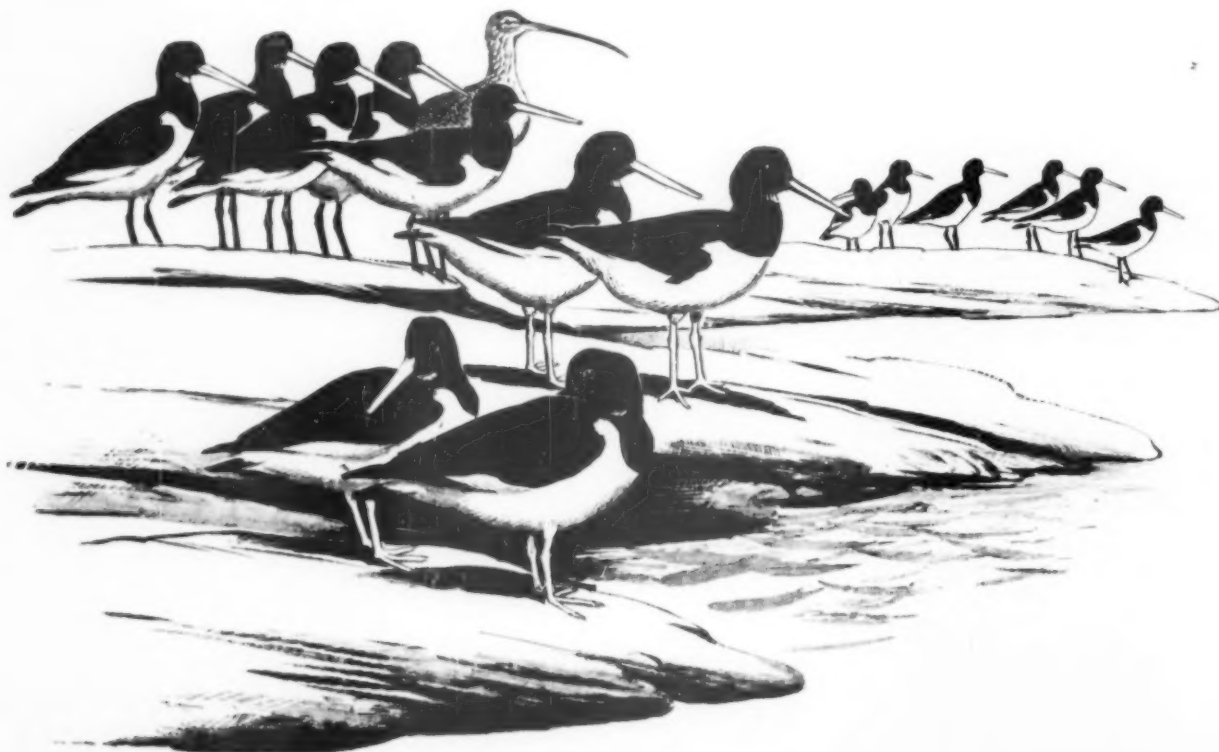
of three little dogs which, unmindful of their peril, raced down the flats at half tide. Would the rapidly widening channels eventually cut off their retreat?

Mine was the great good fortune to spend a week on Hilbre with a little group of photographers who make a holiday of it twice a year at the time of the highest tides. How I managed to crash the party when others have hopefully had their names on the list for two or three years I am not sure. I was so engrossed in work on the European Field Guide that I missed the expedition in March but in the slender hope that there might be room for me in October I extended my stay in England. At the last moment there was accommodation for just one guest. I was the lucky one.

Big Bill Williams, an amateur Cheshire ornithologist, and Norman Ellison, who is known as "Nomad" to millions of BBC listeners in the Midlands, were my hosts. Eric Hoskings, England's greatest bird photographer, was there with his battery

of cameras, and so was Jerry Jamieson, Ronney Pryor, Joe Wells, Dr. McAfee, and most glamorous of all, Field Marshall Viscount Alanbrooke. As one would expect of a military man, Lord Alanbrooke brought along his big artillery—a 14-inch lens mounted on a Kodak cine-special. This was his seventh visit to Hilbre.

When the tide rises and the gray-green waters of the Irish Sea roll into the estuary, the battalions of wading birds are forced to leave their feeding grounds. Most of the curlew head inland, but the thousands of oyster-catchers, knots, dunlins and redshanks resort to Hilbre, and particularly to its satellite islands, the "Big Eye" and the "Little Eye." A bird blind (or "hide" as the British call it), properly placed on either the Big or Little Eye is almost sure to be surrounded by countless shorebirds at high tide. The blind must be put up at least two hours before the tide comes in—before the "build-up" starts. I might say here that I have never



EYE VIEW

seen any blind quite as effective or well made as a Hoskings hide, unless it was the one Lord Alanbrooke has, which is an adaptation of the same design. Lord Alanbrooke let me work from his blind one morning, and ever since I have been quite spoiled. Although it did not have hot and cold running water, I shall not be satisfied until I have one like it.

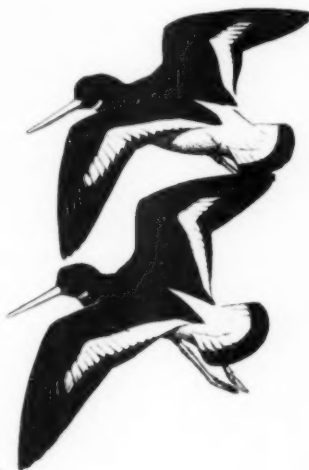
The important thing in estuary photography is the "build-up." If you do not withdraw from sight before the first few waders begin to gather along the creeping water's edge, a few hundred feet away, you might have no live decoys to lure in the passing flocks. The blind must be rigid, so as not to flap in the almost constant wind. As the waters rise the birds increase in number and crowd in closer and closer. If by chance a clam digger elects to wait out the tide on your



islet at this critical juncture, the flocks will clear out. Or if the local peregrine puts the mob to flight, "you have had it." You might as well dismantle your blind or wait for another day.

Week-ends are out. There is too much disturbance by fishermen and others—and there is also too much competition. We did not bother to put up our blinds on Sunday. The big telescope showed us a strange new hide on the Little Eye, and one on the Big Eye as well. Sweeping the scope toward the mainland we could see a blind on the Red Rock with three cormorants sitting in front of it. Scrutinizing the Big Eye again we could see a large flock of knots, while

just behind them were the heads of three bird-watchers with binoculars. Hilbre itself was overrun with people even though the island is posted. At least 30 members of the Liverpool Natural History Society had trekked across the flats. Although Sunday



was a dead loss, we did have two or three successful days (two good days out of a week is considered average). The pictures I got shall be shown eventually to Audubon Screen Tour audiences.

To an American, the oyster-catcher is the star of the show. Oyster-catchers (the same species as ours, but with darker backs) are much more abundant in Europe than they are with us. We think of them as southern birds which we travel to coastal Virginia or South Carolina to see. In Europe they even spend the winter as far north as Iceland. The great flocks that winter on the Cheshire Dee can sometimes be seen walking about in snow! Audubon spoke of observing oyster-catchers in Labrador. He might have been right. Perhaps we wiped out our northern population before other ornithologists were on hand to record the process.

I would not dare estimate the numbers of oyster-catchers that crowded the eroded red sandstone of the Little Eye. At first there were a few dozen, then hundreds, then thousands. Closer and closer they crowded, "kleeping" and making an incredible racket while the build-up continued. At the very moment of high tide a silence suddenly fell over the assembly and every last bird

Continued on page 19

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Winter is a lean and a hungry time. It is a time to see the lone fox; a time to see the single blue jay; a time to see the one deer that may be wintering in your woods. A well-known writer-naturalist says it is

A Time to Meet Nature

By Alan Devoe

THE makers of medieval paintings often had occasion to execute scenes of the creation. These landscapes, densely thronged with tiny figures of birds and all manner of living creatures, must delight and fascinate a naturalist for many reasons; but in one respect, particularly, what he is made to feel is a sense of recognition of his own experience.

Here, in the painting, is a teeming creation, spreading all across the canvas' middle ground, thronged with such legions of created beings that the eye can inspect the details for hours and not take them all in. Over yonder, where the painting's landscape recedes toward infinity, there are to be made out undiminished hordes of tinier and tinier creature-figures, in hint of nature-without-end. And then, way down here perhaps in the left-hand corner foreground, there is one little human figure, symbolizing man, Adam, humanity—what you will. This lone little observer, very likely with his arms upraised in the gesture of wonder and embrace, stands peering at the gigantic, the evidently infinite, expanse of the creation unrolled before him: that garden which the power-before-all-worlds is said to have planted, and set him in.

Whenever I see one of these old creation-paintings, in this style, I am given the powerful sense of familiar experience; which I am sure all naturalists must share. We may not share exactly the theology of the painter. We may not recognize all the species he has painted, for there is a certain time-gulf and science-gulf between hippogriffs of medieval fancy and what actual woodchucks and

chipmunks we may see these days. But we recognize instantly the essential mood and meaning of the picture; and we recognize instantly, with a special shock of recognition, one figure in it. We know the lone little man in the corner. We know that eager and everlastingly frustrated fellow, who is spreading his arms and fairly hopping up and down in his tremendous hunger to embrace the whole creation and take it to him in knowledge and love, and who is so obviously never, never going to be able to do it. He is the naturalist.

Naturalists are of many sorts: dedicated scientists, faithfully analyzing and ticketing; lyric-minded devotees, trying to catch the creation in something more like a song; worshipping naturalists; exploring naturalists; meditating naturalists; and just the legion of us who go bird-watching, hill-hiking, poking into a woodchuck burrow under the summer sun. But none of us, of whatever sort, is a naturalist for long before he realizes that he is bound to be eternally that little man in the picture. Open our arms and mind as wide as we can to nature, the hugeness of the creation is enormously too big for us. Why, there are 4,000 or 5,000 species of just mammals. There are 15,000 species of birds. There are something like 30,000 arachnids and 100,000 mollusks. Scientist, field-man, whatever kind of naturalist we are, we must forever remain a small astonished figure standing (so to speak) at the edge of this gigantic creation, never able to explore it more than partly, never able to take in, in an embrace of the entirety, this thronging, stunning whole.

The intruding realization of the

size of the creation, which comes to every naturalist, can be daunting. It can so overwhelm as almost to repel. That is why, I think, it is perhaps wise for us to learn to "come at" nature, when we can, in her moments of quietness, withdrawal, rest.

In any season of any year, to be sure, the creation continues always too big for us. But sometimes the parade of earth is slowed and thinned to where, at least, we aren't so completely overcome by the "blooming, buzzing confusion" that we can only stare bemused, like a child at a three-ring circus, unable to come to sharp intimacy with any detail because of the impact of the whole. Every naturalist must, by deliberate decision, limit his nature-knowing in some way. None of us is big enough for everything; and the wiser a naturalist gets to be, the less he knows he knows. In this same spirit of purposeful limitation, and realization of how little we are and how impossibly big is the creation to which we would give our hearts, we may now and then rewardingly, I think, remember advantages of winter over summer.

Winter, if you like, is nature's "dead" time. This is the season of earth's sleep in seeds. But to say that the creation is minimal and sleepy now is only to say that it is slowed-down, scaled-down, to where we can have some faint hope of being able really to have a look at it, to fix on a detail here and a detail there, to approach this giantitude without being instantly daunted and bewildered. Nature never, of course, quite

"In the white, snow-mounded woods of January and February, the vast multitude is reduced to things that we can see, touch, and possess." Photograph by Clifford Matteson.



"comes down to our size." We are always little, and infinity is, always, infinity. But "birds"—that impossibly huge summer entity—can in winter become just these relatively few juncos, chickadees, tree sparrows, downy woodpeckers, nuthatches, in a white, still world that lets us look at them in their isolated individualities without the distracting moil of a million other feathered wings.

"MAMMALS"—even on the hundred-odd-acre farm which my wife and I long ago chose as our bounded "sample" of creation, having realized that our knowledge of creation-as-whole could never come to more than a kind of, working smatter—includes in summer a tumult of foxes, skunks, woodchucks, chipmunks, bats, muskrats and dozens of others. It is nearly as impossible to "know" them all as to catch a hippogriff—that fabulous, winged animal, half horse and half griffin. But in the white, snow-mounded hemlock woods of January and February we meet, as it were, the single fox: the face-to-face fox, the fox gleaming in his fulvous silhouette against the whiteness, the fox single, special, and so knowable. Our bats are hung up asleep now in the cold loft of the old barn. Our woodchucks sleep under the frozen pasture. Creation is quieted, hushed, minimal . . . so in a sudden instant, on a frosty morning, our white-tail buck, prancing down the old wood-road, is abruptly a thousand times the buck he ever could be in summer. He is deer-ness-come-alive, the vivid blaze of him.

It is hard, almost impossibly hard, to "come at" nature on a May morning. Here we stand (the little man in the picture) at creation's edge in May; and how can we possibly embrace this or even see it and hear it as we would? The sound of vireos singing in the fresh green of the May woods . . . the May smell of the creek that winds through the pasture, the creek where now the newts are breeding . . . the blooming of dogtooth violets, starring the floor of the woods . . . the hazy spring greens and pinks and yellows of the overgrown fields and orchards . . . the feel of the May-time sun . . . who can "take" this, in arms or mind however wide-stretched and eager? May is when our arbutus and bloodroot are blossoming in the dark leaf-

mold in the woods. This is when the phoebes are building, and it is the time for us to go poking under old bridges. Our barn swallows are coming back, and it is the time for us to slog around the wet barnyard, exultant in the smells of cattle and straw and spring mud. Here on this May morning the creation blazes, blooms and dances in its riot of fullness; and the eager, bewildered figure in the corner, at the edge, the naturalist, is so defeated by immensity that he could nearly weep.

So in May. So whenever we have to "look upon creation full." As clergymen sometimes say, there is no use in a man's trying to get the heavens into his head. We're not made to accommodate so much. And no naturalist is made to accommodate nature; the creation won't go into the creature. But if we can have it quieted down for us a little, thinned, hushed . . . If its particulars can be made fewer, so eyes and mind can seize a minute on this *one* thing, this bit of creation-in-miniature . . .

On a bitter January morning, when my breath hangs in a cloud in the still, cold air, I go through our "lifeless" woods, the snow crunching and squeaking under my boots; and here, rattling and whipping on a walnut twig, is a promethea cocoon. In all the world of this white winter moment, there are only I, and a brittle brown cocoon in my mitten hand, and perhaps far off over there in the pine-grove the sound of the *beadle!-beadle!* of a blue jay. This much of nature, the creation reduced to this, I can take to me. I can hear the sound of the creation, in this single sound, clear and sharp as ice-crystals, the jay-call in my ear. I can touch the texture of the creation, hold it in my hand, feel it between my thumb and forefinger, as I roll this cocoon gently and feel for the stir of sleeping, secret life within. Briefly, piercingly, the unimaginable enormity of things stoops down, slows, focuses, for me to see, touch, and possess.

WINTER, if you will, is a dead time, a sleep time; but I should say that it is on just this account that it is the best time of all for us to meet nature. To *meet* nature, I say: to effect a real meeting in intimacy between the man at the edge of the creation in the picture and the crea-

tion itself, in terms of this particular particle of it, that particular particle. The outstretched arms, raised in wonder and want, cannot close upon the tumultuous throng of life that three seasons of the year may parade. But on a bitter winter morning, in a white world, in the cold and silence, they can close to "take in" the small, intimate, isolated wonder of a promethea cocoon. "Birds," well, we can never know them in all their multitudinous birdness. But we can know this jay, this lean solitary jay, here on the snow-laden conifer bough, in the deepest, closest communion with which we can know truth at all. "Mammals," well, they are very many, and too many. But here in the deep-drifted snow, startling and special as Crusoe's man-track on the island, is the splay-foot patter, two-big, two-little, two-big, two-little, of a companioning muskrat here in a white world where he and I (as it were) are alone together. *This* mammal I can know, and take to me in fullness, and as completely as a brother.

People sometimes wonder how my wife and I manage to "endure" the northern winters, on our isolated country acreage, year after year. There is no enduring about it. There is only delighting. For it is in the winters, in the curious and special sense I have been trying to say, that we specially meet nature.

I recommend winter for nature-meeting. There are not many birds now; but there is that one snowy owl, gliding down on the frozen field, there is that one flock of pine grosbeaks making their warbling whistles in the evergreens. There are not many insects; but here, suddenly, in the sunlit patch of woods, there is this mourning-cloak butterfly trying its wings. There are not many mammals; but here, look, against the hill, where the snow is red in the sunset, there stands a fox with his lean muzzle raised, a forepaw uplifted, pointing, watchful, in the cold twilight. The creation is too big, but in winter it spares-down to sharp, single glimpses. It pauses enough to let us isolate this vignette. In winter we can take the creation to us, if only for this instant, if only in little, in our hand.

The north gales blow, the snow swirls over the pasture fences. Nature is there, for all of us, for meeting.

The CONSTANT Carolinas

THESE CAROLINA WRENS WERE FAITHFUL MATES—THEN TRAGEDY CAME.



"If the male Bewick's wren came near, the male Carolina wren drove him away." Photograph of Bewick's wren by Laidlaw Williams.

By Ruth Thomas

OUR old pair of Carolina wrens we had lost in a bitter January spell. It was weather that might come to central Arkansas only once in a decade. For a week, snow had covered the ground, and one morning the temperature was two degrees below zero.

The Carolina wrens of the woods, it seemed, were content to stay in their wild territories. For the rest of the winter, and all that spring and summer, we heard the loud antiphonal singing, each male proclaiming his sovereignty. In the autumn, the woods' pairs were restless and came visiting. I saw them in my garden and the old brush heaps, they fluttered at the porch eaves, explored shed and garage and barn, but in the end returned to their woodland thickets. We hoped a young bachelor Carolina wren would claim our hilltop and sing up a mate. We never thought to have a lone maiden.

On a cold, sunny morning in January she arrived. I first saw the little cinnamon-brown bird at the woodpile, hopping from one log to another, peering and pecking at the rough bark and tinkling low friendly notes. Later in the day the wren

went into one of my banding traps and I placed the government's metal band, 40-143599, on the right leg. Because Wren-99 was surprisingly small in my hands, I thought it was a female.

Many times in the next weeks I saw the wren with the new bright band. From the windows I watched her eat my suet and peanut butter and chopped nutmeats. I met her again at the woodpile and almost everywhere that I roamed with our Scotties. Sometimes she was talking in pretty rattles. Proof of sex was that she never sang (a male could not have held in songs for as much as half a day) and so we came to call her our "lone maiden wren."

The Carolina wrens of the woods were singing every day. Back and forth, in the voices so great for their size, they hurled joy and pride and defiance—one, it might be, with the rousing "Sweetheart, sweetheart, sweetheart, sweet!" and the other with the beautiful "Dear-est, dear-est, dear-est, dear!" And with all the might of her tiny body, our lone maiden replied in a long, raspy, rolling screech, "Prrrrrrr!" Technically, this peculiar utterance may be a trill, but that word suggests a happy musical quality here quite lacking.

For years I had known that a female Carolina wren replied in this way to the songs of her mate, *in autumn and winter*. Foraging near one another in the wild honeysuckle hedge, they carried on an affectionate, conversational rattling, but if the female strayed to the rose tangle while her lord lingered in the hedge, he soon missed her and began a series of songs, whereupon she screeched and they were quickly reunited. Through the nesting season, the pair had a closer working partnership, with nest or fledglings the focus of their lives, and then I rarely heard the screech.

"Prrrrrrr," I also knew, was the speech of wren wives to one another. Let a woods' pair wander to the fringe of our resident pair's domain, and while the two males dared and defied with songs, the two females screeched in loudest voices. A lone wren's screech was new to me. Did our maiden, from the midst of her acres of homeland, cry to the far singers, "Here I live, come find me, come find me"? Day after day, the songs rang out and the maiden screeched, but she would not leave the hilltop. All autumn she must have wandered, now she would have a mate come to her.

On March 5, a lone Carolina wren

came singing out of the north woods. Our lone maiden, stretching tiptoe atop my garden gate, screeched and screeched and screeched.

"With all the might of her tiny body, our lone maiden replied." Photograph of Carolina wren by John H. Gerard.



At last we had a pair of Carolinas. "The Singingest Wren," we called the male. Our maiden's prattle, we thought, was sweeter than his reiterated carols. Happily they wandered, down to the plum thickets at the foot of the hill, up again to my garden, the tool shed, the woodpile, the feeding shelves, and then across the ridge to the long low barn. The Bewick's wren that thought he owned the barn would scold (like a victrola record going around in one groove, on and on), but he dared not chase the bigger wrens. And so they tinkled and rattled, flitted from one end of the old building to the other, looked at the rafters and the shadowy corners and all the places where wrens might build a nest. Within a week, I had live-trapped Singingest Wren and had slipped a band, numbered 40-180314, on his right leg.

For nearly three years, these two Carolina wrens were faithful mates. There was no doubt of their constancy to one another, and to the hilltop home. Early in their history I had again caught the male and had given him, in addition to the metal band, a red celluloid band that I might recognize him at sight. He wore it all his long life—into his seventh year! His gentle mate so often entrapped herself, permitting

me to check the number, 143599, that I knew her to be the former lone maiden.

No birds that ever lived with us were so tireless and so successful at nesting. True, in their first summer they twice lost eggs to an enemy, and it was only from the final nest that five young ones were fledged. But in the next two summers they raised six families of four to six babies each, in all 32 youngsters, which, including the first year family of five, totaled 37! Of course, the wrens hustled over a long season. They began nest-making in the stir and promise of March, and through August's scorching days they worked, with no apparent diminution of zeal and energy, to feed the last children.

Liking change, they moved to raise each family. Favorite locations were the tool shed near our house and the barn 200 yards to the west. Usually the Carolina wrens claimed one of these buildings and the Bewick's wrens the other, but twice the two pairs nested in the barn only 30 feet apart. Neither pair interfered with the other's nesting, although the two males disliked and mistrusted one another. If the arrogant Carolina chose to peek into his neighbor's nest, the tiny owner could do no more than teeter and twitch and sputter rage. But if the male Bewick's was caught snooping near Carolina's home, he was driven off with pounces and pecks and the angriest notes. The two females, as far as I knew, took no notice of one another.

SINGINGEST Wren and his mate built sometimes in my birdhouses and at other times in odd nooks. One of the nests that I watched closely, from its start to the day the youngsters flew, was crowded into a narrow space between a box of salt and a brush on a shelf above the feed bin at the barn. We had milk goats then, and morning and evening I worked, measuring out grain, within a few inches of the wren in her cave-like nest. I was careful not to stare, and so calm and trusting was the little female that had lived with us since maiden days, that she never flew out in fright.

When making a nest, both Carolina wrens worked with intense concentration. Like brown shuttles flying back and forth, they picked up

and carried to the chosen site whatever loose rubbish was near. Straw, green moss, dry grasses, oak catkins, bits of old leaves—anything would do; the nest above the grain bin was built almost wholly of the lespedeza hay so conveniently at hand. How the wrens fashioned the snug cave in their mass of material, I never knew. Usually it was lined with the goats' soft hair, rarely with feathers, and if not as pretty as the Bewick's wrens' nests, it was nevertheless just as soft and warm.

"Time enough if it isn't wasted," might have been the Carolinas' philosophy. Their rule was to coax the fledglings, which left the nest at 12 to 15 days of age, to the thickets at the foot of the hill, and then, on the third or fourth morning, lead the youngsters again to the ridge, stow them in hedge or brush heap, and begin the next nest. Singingest Wren was never so extravagant of songs as at the start of a cycle. When for most of a forenoon I heard "Sweetheart, sweetheart, sweetheart, sweet!" from the area of the shed or barn, I had only to go out and spend a few minutes of watching to discover the new nest.

For an hour or two, the wrens might work like furies at carrying trash, then give the rest of the day to feeding their hungry family. In little more than a week the nest was finished and the eggs laid; Wife began to incubate and Wren took sole charge of the fast-growing children. By the time he was needed to feed the newly-hatched youngsters, the young wrens of the previous brood were able to fend for themselves. In fact, the precocious sons might be singing in weak, wobbly voices. If they loitered too long around the home place, their father ordered them off with his "pounce, peck, scat" technique.

I particularly remember the last nesting during their third summer, for Wren's crossness and his mate's patience with seven young Bewick's wrens that played almost at the Carolina threshold—going in and out of the shrubs, sliding and wallowing in the dusty places and forever talking "eek, eek, eek!" With the heat, the summer's hard work and the time near for molting, both Carolina wrens might have been forgiven a touch of temper, but it was only the male who pecked those Bewick's

children till they squealed and fled. Yet they never learned; within the hour I again heard smacks and squeals.

The Carolina youngsters fluttered out of the nest and were escorted down the hill to the woods. During the next month, the parents only now and then came home, and Wren, ordinarily lavish with his songs, was for once stingy and saving. Both wrens were pale and ragged with molt, subdued in spirit. One day the female went into a trap; I was glad to have another check of her band, 143599, but I was appalled by her lightness; she was like nothing in my hand. "Tireless," we say of these active little birds, but this cannot be true. The labor required to raise three families in a summer must sap their life forces.

In October, Singingest Wren and his mate returned from the woods to stay. And so changed they were, so beautiful in new plumage, that I would not have known them for old friends except for their leg bands. They looked plumper, their color was a deep reddish-brown, rich and lustrous, and their breasts were a warm cinnamon hue. All their ways were livelier.

Winter was our Carolina wrens' happiest season. Perhaps mine, too. Our old home is gone, the years are hurrying by, yet scenes come to my mind like yesterday. The cold mornings, Singingest Wren's great songs, his breathmaking puffs of vapor. He

knew many songs, my favorite, "Sweetheart," the smooth, sliding "Dear-erest," the shorter and more spirited "whee-udel," "jew-peter" and "Joe Hurley" and far more than I can find syllables for.

And the drowsy noons, the sun on the south hillside like spring! The Carolina wrens in the honeysuckle hedge, I could hear their affectionate chatter. Not often were they so far apart that Wren had to summon with song, his mate to reply with a screech.

Mild days, the Carolinas spent many hours at the foot of the hill, but long before dark, returned to a brush heap near the barn, there to wait the moment for going to bed. It was the time that I cared for my goats, and I dawdled, watching the wrens. The male bobbed and turned from side to side, with each jerky bob giving a hard "Chur!" That was the note for a minor alarm, but in the evenings it seemed to be simply masculine assertiveness. While he "churred," his mate might hop near by, or just rest sleepily, and tinkle to her mate.

The sleeping place, all their winters together, was a house in which the Bewick's wrens had nested, at the east end of the barn. The neighbors' nest was not, according to Carolina ways, the proper kind for young ones, but it must have been warm and right for the bed of two grown-up wrens. In the evening, the female was the first to fly up to the

nest. Wren would give a few last "churs," and then, with quickness and phantom quietness, slip in to the nest beside her.

On a bleak, sleety day in February — it was the 14th — Singingest Wren began to sing early in the morning, repeating one series as many as 50 times, and he sang nearly all day long. Not for a first nest in spring had he ever sung with scarce time out to eat! "Have you lost your wits, little man?" Next day it was the same, and then I realized, with a catch at my heart and some chagrin that I hadn't known at once, that he had lost his wife.

Could there be any other reason for a little bird to sing from morning to night in cold February weather? I followed Singingest Wren east and west and up and down the hill, listening for his mate's rattled answer. He sang till he had all the wrens of the woods singing, and I could hear the wren wives screeching to one another, but on our hill there was no female wren to reply.

I looked everywhere that our wrens ever had foraged. Impossible, I said, to find a tiny brown bird body in winter's fallen leaves, yet still I searched the woodpile, the brush heaps, all the thickety places. At one end of the barn I found scattered red feathers. A cardinal had roosted there, and at last the screech owl had eaten him. Perhaps an owl had eaten my wren!

On the morning of February 24 I walked to the foot of the hill and there, in the plum thicket, the male Carolina wren sang and sang. He was perched high on a bare twig, and I could see the red band on one leg. Grief I felt for my lost wren, but a greater pity for the living bird.

We turned back up the hill, along the path that I walked every day. But now at the top I thought to look again in the brush heap, and leaving the path, chanced to glance down. I had almost stepped on the little body of the "lone maiden wren" rumpled and sprawled in the leaves. I turned the smooth band in my fingers and read the familiar number, 143599. There was no sign of fatal hurt, no clue to the cause of her death.

I buried her deep under a shrub in my garden, while near the barn the male wren sang loudly, "Sweetheart, sweetheart, sweetheart sweet!"



"The Singingest Wren, we called the male." Photograph of Carolina wren by Maslowski and Goodpaster.

By Paul L. Errington*

IN desert or ocean depth, on mountain top or steppe or fertile prairie, in lake or stream or marsh or forest or cave, life follows patterns of encroachment and adjustment that certainly were established in their broader outlines long before man was present to concern himself about them. Apart from the refinements evolved by man, life is mainly a process of unimaginative exploitation of the exploitable, with the participants living as they can.

The known details of this exploitation are so varied as to discourage generalizing, and I shall not try too hard to do so. Rather, I shall write of those animals that we call predators. I shall write of them not only because of the many years of my own professional studies that have been devoted to them but also because of the durable misconceptions of predation that still carry over in public thought.

It is unfortunate that man, the specialist in evil, sees in predation among wild animals so much evil that isn't there. Predation as a phenomenon is as nearly world-wide as any way of life followed by organisms. It is the *only* way of life that multitudinous animals—from microscopic protozoa up to the great whales—are adapted to follow at all. It fits very naturally into the old, old patterns, of life being maintained somehow, when, and where, it can be.

The moth larva that bores through an apple isn't doing anything so much different from what a wasp larva may do in the body of a caterpillar or what a robber fly does when it pokes its mouth parts into a grasshopper. The reindeer browsing on a tundra doesn't succumb to temptation when it eats the eggs in a duck nest—it is just eating. The raccoon eating fallen plums has no reason to think that it shouldn't eat the newborn litter of rabbits that it may find at the same time—or to dig crayfishes out of their holes

Do hawks, squirrels, snakes and other predators deplete songbird populations? What does horned owl predation on quail suggest? A distinguished biologist lifts the curtain on an old, old controversy with

A CLOSER LOOK AT THE KILLERS

or to pursue a crippled bird that doesn't want to be caught.

We may have turkeys feeding upon large insects—and also upon small snakes if they can catch them, or possibly upon the eggs and fledglings of small birds. Or the predation may be highly specialized, a species of predator living exclusively upon one species of prey. The Everglade kite has a beak enabling it to extract a particular kind of large snail from its shell. The goshawk has some specialization in its short, rounded wings, by which it can "sprint-fly" through brush in pursuit of a dodging bird, but it also can and does prey upon mammals. Unlike the goshawk, the peregrine falcon is adapted for swift and sustained pursuit through open air and seldom, if ever, catches its prey in brush or on the ground. The great horned owl is a very general feeder upon nearly everything catchable from insects and spiders to skunks and geese, yet no one examining its soft flight feathers would call it an unspecialized bird. Likewise, the wonderfully keen noses of members of the weasel and dog families may be considered a real specialization for their ways of living, irrespective of how general their food habits may be.

In considering predation as a phenomenon, it should not be forgotten that the animals pursued, or preyed upon, have adaptations, as well, and that many of those suffering the heaviest predation have lived with their predators for some millions of years—and not solely because of their own high breeding rates! Wild animal predators are by no means always able to take their prey exactly as they may wish. Except for the most special of special cases, the records from careful investigations have brought out over and over

again that the one big thing that determines what shall be preyed upon is *availability*. Nature shows scant favoritism in dealing with her creatures. The exploitable is exploited by about whatever can do it.

For extremely abundant small forms—teeming populations of insects or fishes, sometimes of mice, lemmings, rabbits, etc.—availability may mean their local, or regional, abundance. As long as these great abundances prevail, practically all animals having appetites and the ability to capture these "prey animals," can take them virtually at will. Upon the larger or less numerous animal life, predation may or may not be so closely dependent upon abundance, but it is still linked with availability of prey.

We can recognize, of course, that animal life feeds upon something or it doesn't keep on living, and, if that "something" isn't plants, it has to be animals. But, what about the sorts of predation that come close enough to us personally to arouse questions as to whether we should intervene, and, if so, how much?

If we live in town, we may know that the owl-roosts in the pine or cedar grove have bird remains under them and that those remains include more than the unwanted starlings and house sparrows. A sharp-shinned or small Cooper's hawk may wrestle all over your lawn with a flicker that is almost too strong for it to manage, and then the hawk may sit there with outspread wings, taking bites out of the struggling victim. A squirrel may be seen carrying away something fluffy that is *not* an acorn, or a bull snake with bulges along its sides may lie under the bushes while the neighborhood birds flutter around it, or our pet chickadee may no longer show up at the suet, or

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The great horned owl is a very general feeder upon everything catchable—from insects and spiders to skunks and geese. Photograph by G. E. Kirkpatrick.



The robber fly, which pokes its mouth parts into a grasshopper, is also a predator. Photograph of robber fly by Lynwood M. Chace.

there may be piles of feathers that we can't fully account for but we suspect. . . .

If we live in the country, we may note that a red-tailed hawk is interested in our poultry yard, and we needn't delude ourselves that it is after a rat if it can get its meat-hooks into one of those expensive fries! There may be raccoon or opossum or skunk tracks in the dust behind the coops. There may be a covey of nine bob-whites coming to the buildings during a late January snow and only five when next we see them. Something predatory may be visiting the mourning dove nests in the grove, or we may see a snapping turtle feeding on a duck down at the pond, or the grouse or pheasants or rabbits or squirrels may never become anywhere nearly as numerous as we may think they should.

A distinction should be made before we go further: domesticated species can be so inept about protecting themselves or escaping predators that predation upon them falls in a very different category than predation upon the usual run of nature-tested wild mammals and birds. The poultryman has as much

real cause as anyone to worry about losses he may suffer from predation, but even he may often greatly reduce his losses without much if any direct campaigning against the predators. Perhaps this may be accomplished through intelligent selection of a location or through improvement of housing, perhaps through something as simple as keeping an active dog to scare away foxes or providing shelters for chickens to run under if attacked by hawks. An enlightened game breeder I know, whose pheasant pens were being raided by eagles that he was most reluctant to kill, stung the eagles with small shot at long range until they learned to stay away.

A tremendous amount of field research has been done on a number of North American wild mammals and birds. The resulting literature has brought out substantial evidence that looks incompatible with several of the earlier concepts of predation as a factor limiting populations of prey species. I shall not undertake the impossible task of discussing the newer evidence thoroughly or critically in a short article, but I should outline visible trends.

A major difference between predation in which one animal limits the population of another by preying upon it, and predation that is centered upon a population surplus, may be pointed up by an analogy. If cats, dogs, chickens, pigs, or rats drank the milk within a milk pail, or contaminated it, such would have a quite different significance in dairy production than if they merely cleaned up milk spilled on the ground from a full pail. These are about the differences we find in studies of the effects of predation on animal populations in nature. Some predation *can* cut into populations, with the net result of there being fewer prey animals maintaining themselves. This may be conspicuously the case when the predator is an enterprising exotic, or introduced animal, with which its prey lacks experience. On the other hand, a surprising amount of predation upon our favorite game species or songbirds is upon "spilled milk," which has no real chance of being other than wastage, whether it is eaten by flesh-eaters or not.

For at least those common mammals and birds that have definite ideas as to property rights and the degree of crowding that they will put up with, their populations and rates of annual increase may be more or less self-limited. The fights between robins on the lawn, much of the singing or calling of birds during their breeding season, the pulling off of coveys of quail by themselves, and the many demonstrations of intolerance on the part of this or that species can all signify with varying degrees of emphasis something that, as realists, we should try to remember: *Essentially, there is room only for about so many of what the animal behaviorists call a "territorial species," in a particular area, at a particular time.*

The "threshold of security," or supporting capacity of an area for a territorial species, should properly be thought of in a relative sense. Its values, expressed numerically, may differ with the year, and with the time of year, and, in addition, with the state of the environment. For our long-studied bob-whites, grouse, pheasants, and muskrats of the North-Central States,* threshold values, or supporting capacity of en-

* Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin.

vironments, have seemed to be generally lowest during or near the years ending in sixes and sevens, and highest during or near the years ending in ones and twos. Just what is behind these and many other "cyclic" manifestations we don't know. During a given year, threshold values tend to be highest in late summer or early fall, after the breeding season is over; lowest in spring, with the onset of a new breeding season and its new tensions; and intermediate in winter, when the habitat is neither so comparatively unrestricted as in late summer and early fall, nor so full of assertive competitors, as in spring.

There are deadly climatic emergencies—sweeping die-offs, etc.—but the factors that genuinely govern populations may still operate with a good deal of constancy. The "ceilings" of individual bob-whites or muskrats to be accommodated in an area may remain very similar for years at a stretch, and the year-to-year population responses may then follow mathematical patterns. Especially informative is the frequency with which a prey population may increase in conformity to a definite curve, with little or no deviation that can logically be attributed to variations in kinds and numbers of predatory enemies nor to actual predator pressures upon the prey. These instances illustrate the fundamental independence that many prey species may show toward predation as a limiting factor, even when the predation may account for colossal numbers of individuals or of large proportions of the prey populations.

Almost anyone who carries on intensive life history observations of common mammals and birds may find them preyed upon, sometimes quite severely, at immature stages. As I saw my litters of muskrats, marked for later identification, or broods of quail or pheasants or ducklings shrinking away, and at the same time, saw their remains at the feeding places and in the droppings and pellets of local predators, I could understand the feeling of despair that people might feel while witnessing losses suffered by species in which they had special interests.

But whether anything is done to give the species preyed upon added protection or not, I see no justification for the emotional intemperance

that one creature, killing another, often arouses in people. After all, the broods of small to medium-sized hawks and owls that I have worked with shrank away in a similar manner. Why is it so widely believed that predators don't have their own losses from predation? In fact, I don't know of anything that suffers more downright severe "natural" killing, or predation, in relation to their numbers than do weasels. Still, if weasel numbers are controlled by this predation, it would seem to be mainly in the poorer environment for weasels. In their better environment, weasel numbers appear to be determined more by the limits that weasels tolerate among themselves than by what may or may not prey upon them.

In analysis, predation upon most well-studied species of wild mammals and birds is borne notably by parts of populations that try to live under a handicap. If discovered by a predator, an unguarded clutch of eggs or a helpless litter is more vulnerable than the young that can scamper off and hide, and the less advanced young are more vulnerable than the strong fliers and runners or the ones that can fight back. Predation upon such ailing, weakened, or crippled individuals as we may loosely term "the unfit," does occur, but most of the thousands of victims of

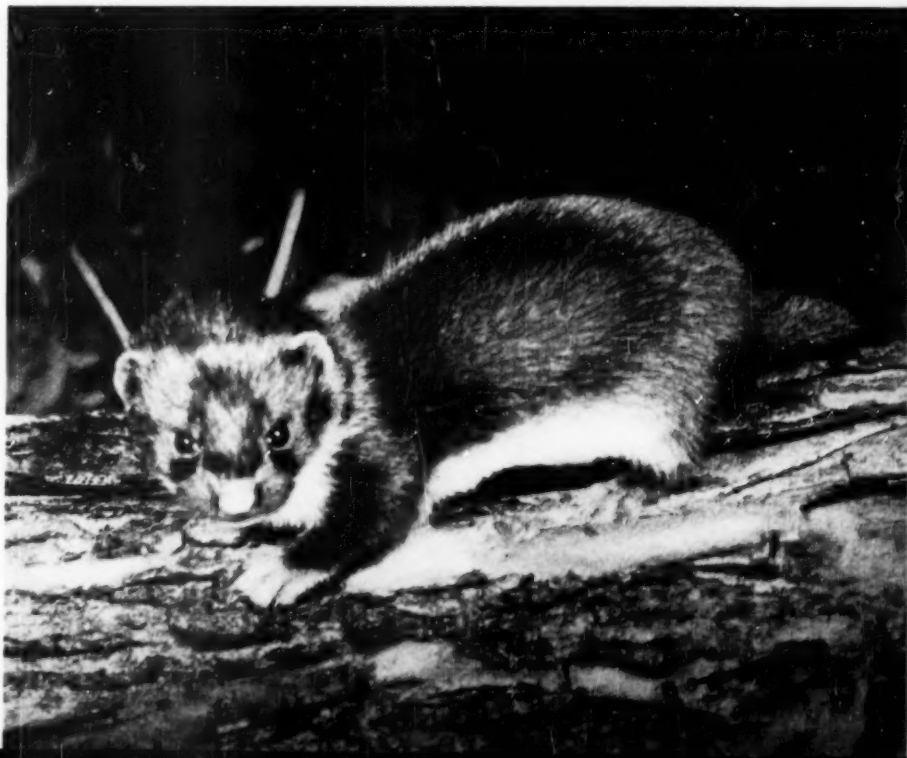
predation that I have handled had the appearance of being physically normal for their ages. One who looks for obvious physical handicaps in the animals preyed upon may expect to find them only now and then. Exceptions may be those prey species that happen to be all but immune to predation. Even so, among these, the very young, the very old, the very ill, or the very unlucky, may not escape predation.

Handicaps imposed by circumstances may so often underlie availability to predators that it may be hard to find examples of victims that clearly were *not* members of biological surpluses or of parts of populations evicted by poor environments or environments already filled to capacity with their own kind, or otherwise made vulnerable by emergencies. When there is, in effect, a place for only about so many individuals of a species to live—for reasons of either or both environmental limitations or psychological peculiarities of the species—and when more than that number try to live there, tragic events have ways of befalling the excess populations.

In animals as dissimilar as bob-whites and muskrats, predation may be invited by overflows of populations into unfavorable habitat or by increased tension and friction in the

Continued on Page 22

The wonderfully keen sense of smell of a weasel is a specialization that aids its way of life. Photograph of a least weasel by Maslowski and Goodpaster.



Red IS AN INTERESTING COLOR

It may also help win a battle between two fighting ring-necked pheasants

By Lynn Trimm

RED is the color of valentines. It flashes in danger signals. The badge of courage is red. So is scarlet-lever rash. Red is a popular shade for fire trucks. It is the color my husband will probably see when he reads this article.

For Wayne is a scientist. The true follower of scientific method never makes a final statement concerning his own research. Not for him the decisive "This is true" or "That is not true." Rather, when pressed, the scientist says: "In the light of facts now available, it appears that there may be a trend toward 'such-n-such,'" or conversely, "a tendency seems to be apparent away from 'this-n-that.'" It is scientific zeal to avoid drawing a premature and possibly inaccurate conclusion which has kept my husband from publishing additional observations as to why red is an interesting color. Where scientists fear to tread is exactly where I rush in.

Red is an interesting color because it makes up the cheek patches on the male Mongolian ring-necked pheasant, *Phasianus colchicus torquatus*. This lustrous bird has made the Midwest, especially the Dakotas, famous as a hunting area. Pheasant simmered in sour cream is a gourmet's dream realized. Ring-necks represent an enormous potential in recreation for the hunter, cash for those who sell hunting gear and services, and a considerable income for states where pheasant hunting is popular. Pheasants have been observed in the wild but little information has been assembled concerning the behavior patterns of these birds.

In South Dakota where pheasants are a common roadside spectacle, Wayne observed them often. He was particularly interested in field observations of fighting between rival males. He mentioned that during these battles the red cheek patches of one of the combatants decreased in size and apparent brilliance and that the bird so affected would

shortly turn and run. Wayne wondered if the magnitude of the red cheek patch might not act as a "trigger" for varied degrees of aggression by another male.

His opportunity for inquiry into the theory came about at Kansas State College in 1949. Wayne's advisor in the Graduate School was Dr. A. J. Guhl whose research has helped establish characteristic behavior patterns of domestic poultry. With Dr. Guhl's help Wayne tried, through a series of controlled experiments, to determine the reasons for dominance of one male pheasant over another. He particularly wished to find the significance of changes in size and apparent intensity of the cheek-patch areas. I watched the experiments being run. Here's what happened.

The Forestry, Fish and Game Commission of Kansas contributed an experimental flock of six male and six female pheasants. Wayne arranged a properly rural locale for the birds at Kansas State's farm just across from the campus. Here under a large tree he built an enclosure of chicken wire which was large enough to give the birds adequate range. Inside the pen Wayne left open patches of mineral soil and grassed areas, and installed cover of old stumps, cedar trees and brush. He plotted the pen into an easily identifiable checkerboard of squares on his note charts.

It was a "small place but their own," at least for the females. All six of these were introduced immediately into their new quarters. Female pheasants are a dull lot except, perhaps, to male pheasants. They scuttled unceremoniously into the chicken wire pen, gray-tan plumage blending with gray-tan grass stems and snow, for the season was early spring. To me they were indistinguishable except for their varicolored leg bands. They began to peck grain awaiting them with an absurd appearance of preoccupation. To me the six females were identified as "the girls" and they proved interest-

ing only as they reacted to the glamorously iridescent males.

Wayne chose a single male to be master of this wire enclosed harem. "Gorgeous Gus" I called the bird though, of course, he was scientifically and officially identified otherwise. Gus was healthy, vigorous, aggressive, and had brilliantly large red cheek patches. Gorgeous Gus did not scuttle. After a moment to adjust ruffled plumage (even so a visiting dignitary might adjust the drape of a coat, the crease of a trouser just before appearing to present his credentials) Gus drew himself up and



with unhurried, dignified gait inspected his new domain. His step was slow but his eyes were busy. His neck turned abruptly in jerky, ratcheting arcs. "The girls" withdrew to cover. Gus took over on the grain. He ate undisturbed.

The other five males were given quarters elsewhere, thus leaving the chicken wire enclosure entirely to Gorgeous Gus for a few days. This idyllic situation was not lost on Gus

ground. He half-rolled his body and spread tail toward the lady. His near wing almost brushed the earth. So Gus, from red cheek patch to luminous tail tip, made of himself a solid mass of pattern and color. To this brilliance he added movement — a jerky forward step. His head bobbed in a bowing motion at each

Gus's nuptial display, often repeated several times in a day, gave Wayne a basis on which to observe and compare the bird's reactions to male intruders. Secure in his chicken wire territory, accustomed to food, water, cover, and the attentions of his harem Gus surely could not wish to become a Displaced Pheasant. He had opportunity to defend his interests.

In successive experiments, the other five males were introduced, each a potential rival to Gus and his pleasant living arrangement. In every case, and the experiments were run not once but many times, the behavior pattern was strikingly similar.

The Visiting Stranger (I didn't name the other five males except for Weary Willie, the smallest and least hardy of the lot) invariably rushed into the pen with confidence. Apparently he was glad to be in the out-of-doors spaciousness surrounding him, aggressive and ready for anything in sight. Usually Visiting Stranger had eyes and attention only for "the girls" that seemed pleasantly distracted by the invader, which immediately began his nuptial courtship display. It depended entirely on Gorgeous Gus's alertness just how the parading culminated. Most often the stranger's display was hardly well underway when Gus interposed himself between the bowing interloper and the lady of his choice. This was a Gus ready to do battle and "the

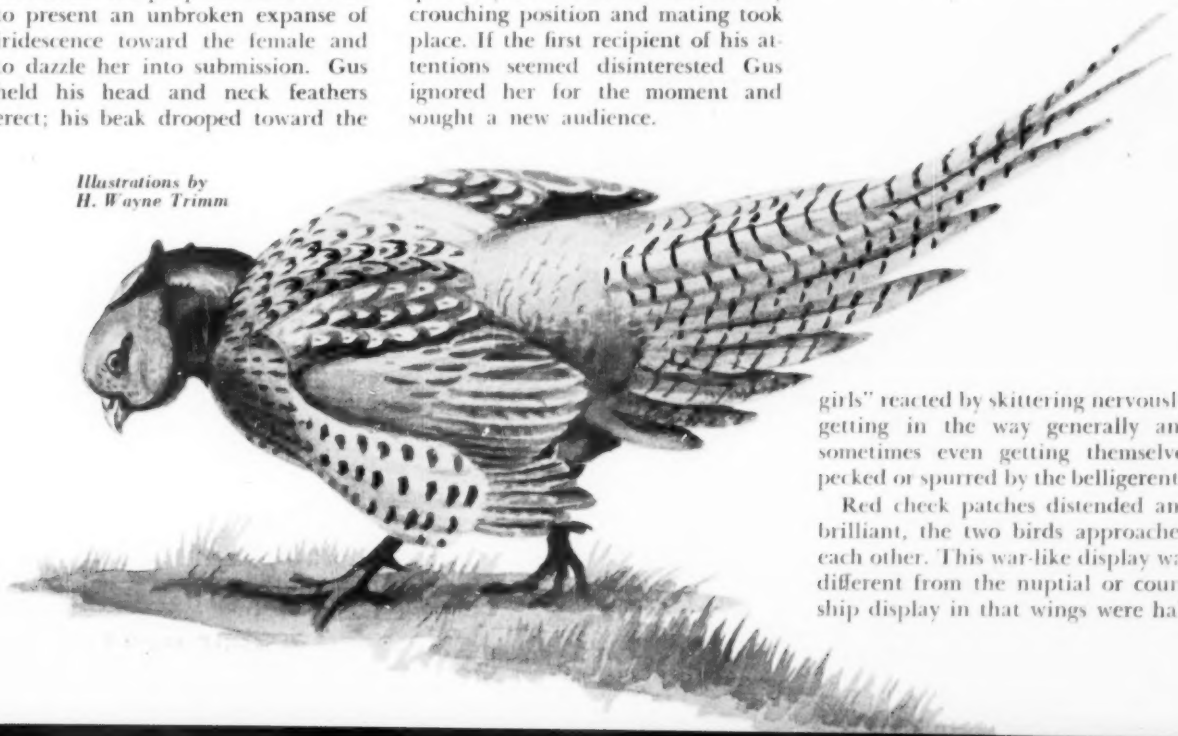
who, when the mood struck him, singled out one of "the girls" for his attentions. He had no favorites but displayed his charms to any one of them that happened to be nearby.

Gus's routine nuptial overtures varied little. His purpose seemed to be to present an unbroken expanse of iridescence toward the female and to dazzle her into submission. Gus held his head and neck feathers erect; his beak drooped toward the

advance. Gorgeous Gus lived up to his name, moving like a half-furled fan held in palsied fingers.

If the lady were favorably impressed and willing to accept him she indicated this by assuming a quiet (and therefore indicative) crouching position and mating took place. If the first recipient of his attentions seemed disinterested Gus ignored her for the moment and sought a new audience.

Illustrations by
H. Wayne Trimm



girls" reacted by skittering nervously, getting in the way generally and sometimes even getting themselves pecked or spurred by the belligerents.

Red cheek patches distended and brilliant, the two birds approached each other. This war-like display was different from the nuptial or courtship display in that wings were half

spread as if ready for flight. Beaks were angled toward each other, menacing and dangerous. Head and neck feathers erect, tail, flank and back areas presented a shield-like mass. Motion now was violent. Gus feinted toward the Visiting Stranger, his cheek patches aflame and larger than ever. Pheasants are a reticent lot as to vocalizing, but in alarm or battle Gus sometimes uttered a low rattling. Usually Gus's advance was met by a similar tactic on the part of the still aggressive Visiting Stranger. If so, the battle was joined in a tangle of claws, spurs and flashing wings as the two flew at each other. Suddenly the Visiting Stranger's cheek patches relaxed, and, at the same instant the struggle's outcome was decided. The stranger ran or was driven to cover. Gus remained undisputed master. This happened sooner or later every time a second male was introduced into the pen.

Wayne thought that some undetected aggressive behavior on Gorgeous Gus's part might be turning the tide of battle rather than the relative size of his red cheek patches.

So he used watercolor to increase the apparent red area on the cheeks of the Visiting Strangers. While this cosmetic addition slowed Gus's victory a bit it had no psychological effect on the birds thus adorned. When faced by a brightly painted intruder Gus seemed uncertain. He displayed and sparred much longer before attacking. The Visiting Stranger was defeated in each case but the battle lasted longer. Under ordinary circumstances, it seemed, a once-defeated bird is literally easy pickin's for the victor of the first battle should they meet a second time. I might add that the Visiting Strangers had their faces washed before being returned to Bachelors' Quarters.

The same water color technique was applied in reverse when Gorgeous Gus received an edging of black paint which reduced the brilliant area of his red cheek patches. Now began a rough time for Gus. Now the Visiting Strangers interrupted his posturings with aggressive battle, and in every case but one, it was Gorgeous Gus that sought ignominious sanctuary in the cover of brush. The exception was Weary Willie, least worthy of the antagonists. Willie was tolerated and ignored by Gus following indecisive conflict. I hope the water which washed away the masking black on Gorgeous Gus's cheek patches also soothed his certainly baffled outlook.

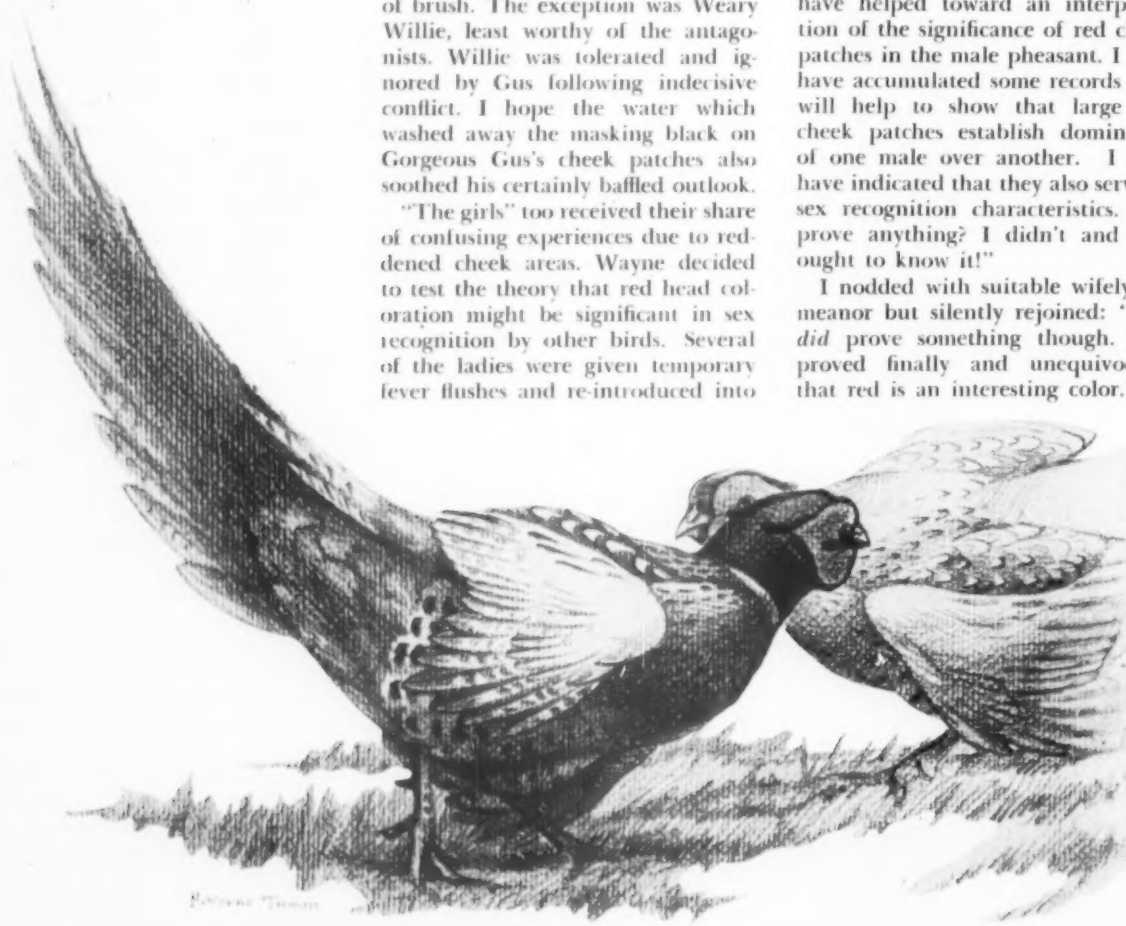
"The girls" too received their share of confusing experiences due to reddened cheek areas. Wayne decided to test the theory that red head coloration might be significant in sex recognition by other birds. Several of the ladies were given temporary fever flushes and re-introduced into

the flock. On sighting one of these, Gorgeous Gus went into display as he would for another male. One of the two apparently misinterpreted his motives. She acted femininely receptive and assumed the customary quiet posture that is preliminary to mating, her back toward Gus. He abruptly changed his plans and was about to mate with her when he caught the flash of her red cheek areas. This situation roused Gus's ire more than a little and he renewed his attack with such belligerence that the female fled for cover. Variations of the same result were obtained every time the experiment was repeated.

I was remembering the hours of observation; voluminous notes; reams of sketches and paintings; piles of color slides and feet of movie film devoted to the project when, not long ago, I asked Wayne, "Just what would you say you proved by that pheasant behavior problem at Kansas State?"

He observed a moment of silence, drew a deep breath and then in his "patient" voice re-explained: "I didn't *prove* anything! I think I *may* have helped toward an interpretation of the significance of red cheek patches in the male pheasant. I *may* have accumulated some records that will help to show that large red cheek patches establish dominance of one male over another. I *may* have indicated that they also serve as sex recognition characteristics. But prove anything? I didn't and you ought to know it!"

I nodded with suitable wifely demeanor but silently rejoined: "You *did* prove something though. You proved finally and unequivocally that red is an interesting color."



tucked its long orange bill into the feathers of its back and went to sleep.

So busy had I been photographing the handsome oyster-catchers out of one side of my blind that I was quite unaware of what had been taking place on the other. Hearing a sudden rush of wings from that quarter, I peeped out. There, just a few feet away, was a great gray carpet of knots, close-packed as only knots can pack. There were thousands. More were dropping in and so crowded were they that they stood on each others' back until they could find a spot to wedge in. I am told that sometimes the knots on the Dee in winter exceed 50,000 in a single flock. Spectacles such as this must have inspired H. J. Massingham when he wrote, "A nation of knots spreading over the sea approaches the land like a gray rain-cloud, constantly altering its shape and shifting as the birds pursue their intricate mazes through the air. As the corporate legion draws nearer the roar of its multitudinous wings is like the booming of high waves at the foot of limestone caverns."

Like an international army drawn up for review each species at Hilbre tends to maintain its own ranks. The redshanks gather by the hundreds on certain rocks, the turnstones on others. Activity is suspended during the brief period of high water, but when the tide starts to recede and the feeding grounds are again exposed, the flocks begin to move out.

Eisenhower and the Bird Book

There was a rumor that during the Italian campaign (actually it was during the North African campaign) General Eisenhower issued orders to secure a certain bird book. We wondered, was Eisenhower interested in birds? Hoping for some clue I asked Lord Alanbrooke, while we were drying the dinner dishes at Hilbre, whether Eisenhower was interested in birds. He said he didn't think so, but "Ike" presented him with the National Geographic Society's two volume "Book of Birds." This was just the clue I needed. Upon my return to New York I happened to be at a luncheon with Gilbert Grosvenor, President of the National Geographic Society. He

rounded out the story. During the African campaign, Eisenhower was working with the leaders of the other allies. Lord Alanbrooke was Chief of Staff of the British Army. The two men were friendly enough but there was just a touch of formality at first. During a conversation Field Marshall Alanbrooke mentioned that he had tried to get the Geographic Society's bird book but it was out of print. Eisenhower quietly picked up the ball and within two days had the two volumes at Alanbrooke's headquarters. A set had been located and flown immediately across the Atlantic. From then on it was "Ike," not "General Eisenhower," and the two great men became firm friends, dedicated to winning the war.

Lord Alanbrooke and the Hobby

To get back to Hilbre just briefly. Lord Alanbrooke's hobby, of course, is bird photography, but the hobby of which I am speaking here is a bird, a sort of falcon.

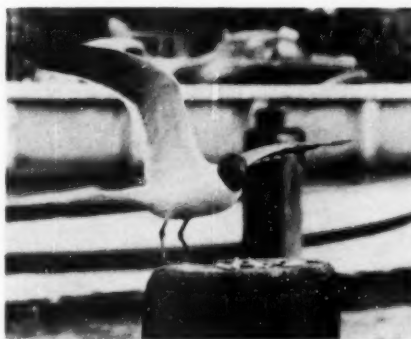
Eric Hoskings told me that at the close of the Potsdam Conference the first thing that Lord Alanbrooke did was to call him up long distance to ask how the nest of the hobby was progressing. Hoskings had built an elaborate blind on stilts for the purpose of photographing it. On Hoskings' advice he hurried back to England, and while still in uniform took colored movies of the bird and its family. We were treated one night at Hilbre with a showing of this beautiful film.



Quiz

The author, a well-known bird photographer, asks about each picture, "What bird is it?"

By Hugo H. Schroder. All photographs by the author.



1 ←A black head, dark mantle, and white border along the hind edge of its wings identifies this eastern species.

↓ The only flycatcher with rufous tail feathers.



ANSWERS TO
QUESTIONS ON PAGE 39



3 ←A large eastern goatsucker with a brown throat, no conspicuous white on its wings.

By Louis Bromfield*

THE whole field of conservation of human and natural resources, in its very broadest sense, becomes increasingly important as the life of this nation becomes steadily more complex and the land of the nation becomes increasingly encumbered with population and increasingly precious.

I think my interest in the whole field was born at a comparatively tender age through the efforts of my father, now dead, to reclaim the wasted and semi-abandoned farms of my home county in Ohio. He had a passion for land and for horses and oddly enough, neither for the best land nor the best horses. He preferred the horses which had hard mouths or were considered unmanageable and could, he believed, be reformed and the farms which no one wanted any longer but could, he knew, be re-

stored to life and fertility. As I grew older I played a considerable role in reforming both horses and farms and out of my experience with the horses, I came to have no fear whatever of any horse, and out of my experience with those pathetic, abandoned farms I developed a genuine passion for reclaiming land and restoring it to high production.

This feeling about the earth cannot be separated from countless other factors of human life or indeed from the operations of the universe itself. It is concerned with economics and sociology and human nutrition and recreation, with health and birds and fishes and wildlife in all its forms. As a young man I was vaguely aware of this fact but it was not until my middle years that the full realization that all of these elements quite naturally brought themselves together into a definite pattern of what today is known as human ecology. Human ecology sounds a \$64 word but its meaning is in reality quite simple. It means, "How does man live to the greatest advan-

tage with and in his natural environment?"

Not so long ago many specialists in science declined to accept ecology as a true science. This fact arose, I think, from the overspecialization in education which for two generations or more has exerted a somewhat paralyzing influence upon the whole of our education and to some degree handicapped the advance of truly civilizing influences within the nation itself.

This tendency toward overspecialization overlooked the fundamentals which made the Renaissance perhaps the greatest flowering of civilization ever known to the Western world. It failed simply to take into account the great truth that in the universe no single fact is unrelated in some way to every other fact. This overspecialization produced a great deal of research and a great deal of theory leading down narrow alleys that were blind at the end and numbers of serious scientists who believed that at the end of their own little alleys lay the answer to the universe.

*Address given by Mr. Bromfield at the National Audubon Society annual dinner, Hotel Roosevelt, November 19, 1952, in response to receiving the Audubon Medal presented to him in recognition of his distinguished service to conservation.

THE TASK BEFORE US

The Soil Conservation Service developed a new pattern of land use. Photograph courtesy Soil Conservation Service, U.S. Department of Agriculture.





Louis Bromfield (left) receiving from Ludlow Griscom the Audubon Medal for distinguished service in conserving our natural resources. (See page 32 for the story of the Audubon Medal.) Photograph by Acme.

We must make people realize that their happiness—our future as a nation—depends on a new respect for the land.

I am glad to say that this trend toward overspecialization has begun to give way to a broader conception of education which recognizes the principles of the Renaissance. With this adjustment has come the recognition of ecology, which itself embraces so many facets of our life, as a definite science and one of the most important in the progress of the human race toward higher levels of health, happiness, wisdom, satisfaction and indeed civilization.

Frequently, when I am asked for an example of the workings of ecology I point to a development which has occurred in my own state of Ohio and which is known as the Muskingum Conservancy District. It is perhaps the greatest achievement of its kind in the world today. The district lies in what might be called the Ruhr of America, an area heavily populated and one of the most highly industrialized regions of the world. The Muskingum Conservancy District began as a flood con-

trol project following the terrible floods of the year 1913 but fortunately there were wise men who foresaw immensely greater possibilities beyond those of flood control alone.

In the pattern which was eventually developed forestry had its place along with the creation of 12 of the most beautiful lakes to be found within the borders of the nation. Farmland within the area and belonging to the district, was rented to neighboring farmers but only under conditions that it was farmed well and according to the latest and best agricultural knowledge.

Soil conservation practices and forestry methods have reclaimed within the area thousands of acres of once wasted and abandoned land. The lakes were stocked with fish and have become among the best fishing lakes to be found anywhere. The forests and wild land abound with game from grouse to deer. Bathing is provided at beaches artificially created and boating of every sort exists. The

wild and forested areas have cabins which may be rented and sites for picnics and barbecues. Stream pollution is non-existent above the lake areas. A whole chain of sanctuaries for wildlife and, in particular, for migratory waterfowl has been established from Lake Erie to the Ohio River where they join with similar sanctuaries extending through the T.V.A. area.

In short, not only have all floods since 1913 been contained and controlled, but 8 to 10 million people within a maximum of two hours' drive of the area have been provided with a veritable paradise of nature at her best.

Both the good forestry and good agricultural practices have spread from the area itself into surrounding agricultural areas with great benefits to the economy of the individual as well as of the state and the nation.

Best of all perhaps, this project is the creation of the citizens of the watershed themselves. Beyond some initial aid from both federal and state governments of a sort available to most areas under existing laws, the Muskingum Conservancy

District is operated on its own as a public corporation. All its land pays taxes, acre for acre, as does my own farm. For the past few years it has been showing profits from the operations of its forests and agricultural lands, boat concessions and the rental of cabins, from very small admission charges for use of boating and beach facilities and from the leasing of fishing facilities in its lakes and streams to the State of Ohio. Each year its income increases. And let me point out that this is not a small undertaking. It concerns the whole watershed of the largest river within the borders of the state of Ohio. Yet it is a pattern which can be followed by the citizens of all but the largest river watersheds in the nation.

At our own Malabar Farm we have followed in the whole of the reclamation program a similar pattern, believing all the time that the better the practices in water, in forests and in agriculture, the more man himself benefits along with the birds and wildlife in every form. Fortunately our own farmland adjoins that of the Conservancy district so that we become merely an extension of the larger project. The reclamation of our own land, once wasted and abandoned and virtually devoid of wildlife and its transformation into rich, ordered and managed farmland with ponds and springs and streams and forests, has been beyond any question, the most satisfying experience in a life more than usually rich in satisfactions . . . a fact for which I am humbly and properly grateful.

Perhaps the greatest task we have before us today . . . and I speak now of the long run and the vast benefits in a country where each day 7,000 more people come into existence—perhaps the greatest and most serious task we have before us is the education of people everywhere to the realization and understanding of the principles of human ecology. This must be done if we are not, in time, to sink to the level of peoples in certain Asiatic countries not only in our material living standards but in other countless respects as well.

Societies such as this one have already made very great contributions. I am glad to say that the huge numbers of sportsmen in this country are coming rapidly to realize the part

they can play through designing and pressing proper legislation. The farmers have begun to play their part with increasing intelligence and vigor. Indeed the revolution in agriculture, just beginning to be recognized, is one of the most striking advances of our times.

Even the banker has taken recognition of the material values which arise from the sound and intelligent use and development of our natural resources. Those whom in the end such a program affects and benefits most are still the ones who understand least the benefits. These are the city dwellers whose lives become increasingly one of the great problems of our times . . . their problems of adequate and abundant food, of good nutrition, of health and recreation, indeed of all those benefits which arise from a proper understanding and respect for the relationship between man and nature.

Before us, in this great and still only partly developed country, there lies a pattern for ecological development the value of which is beyond measurement in terms of money and of human satisfaction and welfare. Here and there as in the Muskingum Conservancy District, in the T.V.A. area and in the Brandywine watershed, beginnings have been made. Our national parks are among the notable monuments of the world. Their problems are simple beside those of stabilizing and developing man's relation to his immediate surroundings in the populated areas

which grow constantly more congested.

I have seen that proper relationship between man and nature in certain crowded areas of Europe, notably in Germany, Austria and France. From the terrace of my house in France, only 20 miles or so from Paris I have seen deer and wild boar and every sort of game bird. From the window of the living room I have fished for trout in the clear waters of the stream that ran against the house. We are beginning to arrive at some such conditions in the Muskingum Valley watershed in my own Ohio.

The task is a large one, but far from an impossible one. Already in every part of the country good citizens are working toward the common end of building toward the better life which can only be established by cooperation with nature herself.

Instead of a wasted and ruined countryside, crossed by polluted streams, devoid of wildlife or beauty, it is possible to make of the whole nation a vast and wonderful park in the midst of which lives and works man himself surrounded by a kind of natural paradise. All this is far less of a dream than it might appear. It is merely common sense. More than that it is a plan that is profitable, not only in terms of dollars and cents but in a thousand other ways. The pattern is merely that of man working *with* nature and creating the environment which is his proper birthright . . . if he chooses to claim it.

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A CLOSER LOOK AT THE KILLERS—Continued from Page 15

social structure, even of individuals occupying the best habitats. Remains of the dead and "sign" of wholesale murders may be scattered about the landscape for a time. But, after nature's period of shaking down to comfortable or manageable population limits is over, both the bobwhites and the muskrats may live with remarkable security for months, even in the presence of large numbers of such formidable predators as horned owls in bob-white range and minks in muskrat range.

With increasing knowledge of these natural interplays, one can hardly avoid being impressed by the automatic ways in which they work—always within the rules of order

imposed by protoplasm and its environment. Common predators switch from one type of prey to another, in keeping with the outstanding role of availability which determines their food habits. Common prey animals, in their turn, show many types of population counterbalancing.

If predation by minks upon muskrats or by horned owls upon bobwhites is heavy, losses from other enemies tend to diminish in proportion; in the absence of the minks or the horned owls, losses from other animals preying upon muskrats or bobwhites tend to increase. The muskrats, themselves, can be the greatest killers of other muskrats in

places lacking their typical predatory enemies. And, if losses of early-born young are unusually severe, there may be, in compensation, not only prolonged late breeding but also high rates of survival of the late-born young. Conversely, if losses of early-born young are unusually light, the season's breeding may not only cease early but the loss rates of the late-born may also be exceedingly high, and so on.

While it doesn't always happen that all loss from predation or from any other cause of death to prey animals is wholly compensated, at any one time or ever, far more natural compensating occurs than people are in the habit of thinking. That is the supreme reason why so many prey species may thrive despite our misgivings or our expressed won-

der that they can exist at all under the pressure put upon them by predators.

Instead of taking it for granted that the eating of an egg or the killing of a young animal by a predator must mean one less of the prey species to be around by the opening of the hunting season or one less for the next year or the like, we should keep in mind that such loss from predation *may* be chiefly a *symptom*, occurring *incidental* to some of the things that *really dominate* populations.

To me, the great fascination of animal predation as a subject for study has lain in the variety of its manifestations of the timeless laws of life. Predators are among those wild creatures that maintain their integrity as wild creatures regardless

of human meddling and man's ridiculous propensity for judging wildlife as good or bad according to moral standards of his own invention that he hardly pretends to adhere to, himself. Many predators are surely among the wildest and freest of all creatures. Of our native wildlife, the predators, too, include some of the rarest, the most beautiful and the most superbly adapted animals. To some of us, they offer highly-regarded antidotes to the banalities of a civilization top-heavy with people.

I don't maintain that it may never be necessary to protect our economic or other interests from predators of one kind or another. Let us do whatever needs to be done in this respect, but, in so doing, let us weigh values and avoid senseless extremes.

MYTH-INFORMATION

Number 8 in a series
By Lewis Wayne Walker

(Many wildlife myths and legends, built up by our early settlers around certain kinds of American birds and other animals, persist from generation to generation. In the eighth of a series, a writer-naturalist tells the true story underlying some pet beliefs.—The Editors)

SHINING
EYES
IN THE
DARK



City fiction writers often let their imaginations run wild when they talk of the "eye-shine" of wild animals. It is conceivable that a person can get "eye-shine" from a wild animal if the moon is directly back of the observer. Generally, however, eye-shine is due entirely to an artificial

light source originating in an almost direct line from the observer's eyes to those of the animal. It is purely a matter of direct reflection and the eyes themselves never emanate light except through reflection. Photograph of kit fox by Lewis Wayne Walker.

How the St. Paul Audubon Society established

A NATURE SANCTUARY

Photographs courtesy of St. Paul Dispatch-Pioneer Press

IN common with many other Audubon Societies, the St. Paul, Minnesota, group has created a sanctuary which serves the purpose of protection and education.

Nature trails with attractive markers to indicate trees, shrubs and wildflowers will be maintained so that school children and other visitors can derive maximum value from their time spent in the sanctuary.

Many members of the St. Paul Audubon Society, which is an active branch of the National Audubon Society, are cooperating to make the sanctuary project a success. John Hall is general chairman. Working under him are activities chairmen who are responsible for plantings, protection, botanical studies, birdhouses, feeding stations, nature trails, and sanctuary history.

This appropriate rustic sign marks the 12-acre sanctuary which has been created with the cooperation of the St. Paul Park System. The area is an abandoned tree nursery.

John Mazzitello and Kermit Piper, student members, put finishing touches on two birdhouses for the sanctuary.



The Joyce Kilmer pool near the sanctuary superintendent, and





Putting the roof on an 18-room martin house are Larry McEvoy and Cecil Wells. Youthful members have taken a great interest in the sanctuary.



Harold Piper and Charles Hart fasten the martin house to a pole. It was occupied soon after being erected.

is admired by W. Lamont Kaufman, park
Mrs. Pearl Jewell.

Mrs. Charles Hart, St. Paul Audubon's president, and John Hall pause during a stroll
down one of the trails.



For more than a half-century, ornithologists have used the curiosity of birds to learn their identity.

That Lure of the

By Alexander Sprunt, Jr.

I SAT cross-legged on the ground at the edge of an oak-palmetto jungle of a Carolina barrier island. It was very still. The leaves of nearby magnolias stood out rigidly overhead as though cast in the bronze they resembled. I listened intently but could hear nothing. Therefore, I tried again. Placing my fingers across my lips, I sucked in my breath. The high-pitched, mouse-like squeak that my effort produced, had an instant effect.

Almost at once there came a slight, a *very slight* rustle in the leaves behind me. I shifted my gaze from shrubbery and trees and dropped it to the ground, turning my head slowly to the right. The rustle occurred again, then I saw the reason for it. About three feet away, head reared several inches above the pine needles, and lidless eyes full upon me, was a blacksnake!

My mouth dropped. Could it be that *it* had come to the squeak? Slowly I raised my fingers again and emitted another faint high-pitched squeak. Instantly the snake's head reared higher, the sinuous body slid forward a foot or two, and then stopped. I dropped my hand and laughed out loud. Quickly the snake lowered its head and vanished. Undoubtedly it *had* come to the squeak, my first experience in having a snake respond to that appeal.

To my lasting regret I cannot recall who taught, or first introduced me, to "the squeak." To him I owe a great debt for, through many years, it has been and still is, a tremendous source of pleasure and profit in wild-life observation. To him, wherever he may be, I now, sincerely acknowledge this debt.

It is certain that this high-pitched sound, used to attract birds from

the hearts of dense thickets,* and thus into view where the birder can see them, is known to thousands of people today. Probably any bird-watcher of experience has used "the squeak" in one way or another. Techniques vary, but the sound is usually produced by kissing the back of your hand, or placing one or two fingers against your lips and sucking air in. Tone and pitch can be varied by experimentation.

The point is, does it work? I have found that sometimes it does and sometimes it doesn't. Some users of the hand-squeaking method, if it could be called such, have varied it by simply making a "pishing" sound with the lips by *expelling* breath, rather than inhaling, so to

* The Audubon Bird-Call, a mechanical hand-operated "squeaker," is sold by the Service Department of the National Audubon Society. See "Nature in the News," page 28 for a news story about the inventor of this bird-call.—The Editors.

A squeaking sound that attracts birds can be made by sucking on the back of one's hand. Women who wear lipstick dislike this method because the lipstick rubs off.
Photograph by John K. Terres.



Wild -- the SQUEAK



The Audubon Bird-Call, a mechanical squeaker, has attracted warblers, kinglets, grosbeaks, and other birds. Photograph by John K. Terres.



Squeaking has a quick and powerful effect in luring catbirds. Photograph by Hugo H. Schroder.

speak. It is found to be effective also. The entire idea, of course, is the attraction of birds for observation in any area where they are not visible at the moment. If one is in a patch of woodland, marsh or such locality, which seems promising but appears deserted, the squeak is uttered in the hope that something will show itself.

The squeak has "paid off" so often and so profitably in my experience that I use it on every trip afield. It has resulted in some of my most interesting and important observations, affording first views of some of the rarest, or at least little known birds, of this country. It was responsible in revealing to me my first Bachman's warbler which, though I could hear it singing plainly, was invisible amid the dense foliage of a Carolina cypress swamp. The squeak suddenly brought it out of its leafy retreat to an open perch not eight feet away. It brought to

me my first Colima warbler in the Chisos Mountains of the Texas Big Bend and, on another unforgettable day, amid the high pines of western New Mexico, the first painted redstart I ever saw appeared from nowhere, at the sound of it.

It has brought birds out of rhododendron thickets in the eastern Blue Ridge, the California Sierra, the Arizona desert, and the spruce forests of Maine. Like filings to a magnet, it has attracted migrants from the dense mangroves of Bush Key, Dry Tortugas, and the "hammocks" of the Kissimmee Prairie and the Everglades. It brought up out of the grasses, my first dusky seaside sparrow on Merritt's Island, Florida, a stretch of marsh that, a moment before, had appeared utterly devoid of avian life. All this it has done and more; therefore, it is easy to see why I believe in the value of the squeak.

Squeaking usually gets a response, but the "responder" might not wear feathers! The opening paragraph of this article is a case in point. About the last thing I would have expected that day on the island was a snake, yet that was what answered. One day on a Texas ranch while out with

a group of students of the Audubon Camp, we were sitting at the side of an old, rutted road trying to squeak up a Texas jay. Everyone was quite still and a slight movement caught my eye to one side. There, on the other side of the road, 8 or 10 feet distant, stood a gray fox staring us in the eye!

Several times I have been startled by a great rustling and scratching of leaves amid thickets, after sounding the squeak, as excited fox squirrels have come rushing to investigate the noise. Almost as large as a house cat, these big, white-nosed, white-eared squirrels, living so much on the ground, can create an amazing disturbance in the dry palmetto fronds and dead magnolia leaves of the Carolina low country woods.

Once, in the North Carolina mountains, a wildcat came sneaking, belly to ground, toward me as I sat on a rock uttering a high-pitched squeak. It came to within a few yards, stopped, sat up on its haunches and stared at me a moment, then vanished into the shadows. Raccoons, with their sharp-visaged, black-masked faces screwed into expectant curiosity, have come within a few feet of me; gray squir-

Women and children like the mechanical squeaker. Turning the flattened metal "grip" and the rounded cylinder in opposite directions, makes an easily-produced squeak, or creaking, sound. Photograph by John K. Terres.



rels have often answered, as well as the little ground squirrels (spermophiles) of the West.

Great-horned, barred and screech owls have swept over my head so close as to brush a cap at times, and



Fox squirrels are sometimes attracted by the squeaking sounds of bird watchers. Photograph by Karl Maslowski.

Thin, high-pitched squeaking sounds may attract foxes and other four-footed animals. Photograph of gray fox by L. G. Kesteloo.



Cooper's and sharp-shinned hawks have executed aerial somersaults a foot or so overhead when they found that it wasn't a mouse after all!

Generally speaking, the titmouse-chickadee combination is the most responsive group, and as any bird-watcher knows, often brings others with it. The sparrows and buntings are also very satisfactory in response; sparrows particularly, and the marsh species predominantly. An apparently barren reach of marsh often becomes alive with sharp-tailed and seaside sparrows popping up here and there on the swaying stems, all in a high state of excitement at the squeak. The thrushes are susceptible to a degree, and mockingbirds and catbirds become all but frantic at times with excitement over hearing the "squeak." The blackbirds, too, will surprise the squeaker now and then. I have had flocks of feeding cowbirds a hundred yards away in an open field, come swarming about the car in an instant response, practically alighting on the hood and fenders. Red-wings and grackles also react, but not so commonly.

AND yet, at times the squeak is utterly unproductive! Time and again, I have squeaked and squeaked without a bird appearing. I cannot state that any one season of the year is better than another. There is no rule that I know of which governs the response. When young birds are in the nest and being fed would seem to be the best, yet it does not consistently work that way. However, the failures are forgotten in the successes and one succeeds in attracting certain birds, by squeaking, more often than not.

Some observers maintain that an imitation of the screech owl's tremulous call will attract these birds to the imitator. I have seen it work remarkably well with small birds such as kinglets, warblers and vireos but, never having been able to master it, I prefer to use the squeak.

"Squeaking" birds has been a source of pleasure and observational profit to me that will always be a delight and it holds much promise of seeing birds which the birder might not see if he didn't use it. After all, that is one of bird-watching's greatest attributes, one never knows what to expect! As for the squeak—go out and try it sometime.



N A T U

NEW GADGET BOON TO BIRD FANCIERS

Improvement on Device Used by
Callers in Italy Will Chirp,
Squeak or Sing

*Reprinted from
N. Y. Times, Sunday, October 12, 1952.*

Roger W. Eddy, an author and a former ski trooper, is the developer of a gadget that has been known to make the rose-breasted grosbeak rush in where robins did not bother to tread. With the help of the National Audubon Society, the gadget is becoming a favorite item in the bird watcher's equipment, which heretofore has consisted principally of a pair of binoculars.

Mr. Eddy learned about birdcalls a year ago from a source that had been untapped by most birdlovers. He and his wife and their two small daughters were visiting in Italy, where Mr. Eddy had served with the Army. One day, while on a train, the former Tenth Mountain Division officer saw an Italian "cacciatore," or hunter, with his catch of songbirds.

Such a sight very likely would have repelled a naturalist, but Mr. Eddy realized that Italy does not have the conservation laws common in the United States. Also, he realized there might be a story in his fellow passenger's occupation. He soon learned how Italian bird hunters lure their prey with a large variety of home-made gadgets. They sell the birds to restaurants as delicacies.

Gets Calls As Gift

Mr. Eddy decided instantly that the predatory feature of the bird-calls would best be left to the cacciatores, but he saw in them an intriguing way of getting to know the birds on his family's dairy farm in Newington, Conn.

He found that the calls could not be purchased easily, but some hunters, unwilling to sell, made gifts of them to him. He assembled more than a dozen and, on returning here, found the calls were unknown to many ornithologists. It is not unusual for people who make a hobby



of bird watching to make sounds with their lips, but the devices Mr. Eddy brought back were novel here.

The Italian calls are made of wood, copper, bone, plastic, leather and shell. They can be made to cheep, trill or coo, according to their purpose, by being twisted, tapped, squeezed or blown. Mr. Eddy's most elaborate trophy was a polished olivewood okarina-like device that can coo like a dove. An old copper shellcase had been made to produce a sound like that of a duck.

For quail, there was a hollowed-out bone with a leather air sac. The most simple item was a bit of wood with an ordinary screw which, when turned, made a squeaking sound.

Mr. Eddy's gadget is an improved version of this. Made of birchwood with a pewter attachment, he and Mrs. Eddy assembled a few of these on their kitchen table. With the approval of the National Audubon Society, the device was trademarked the Audubon Bird-call.

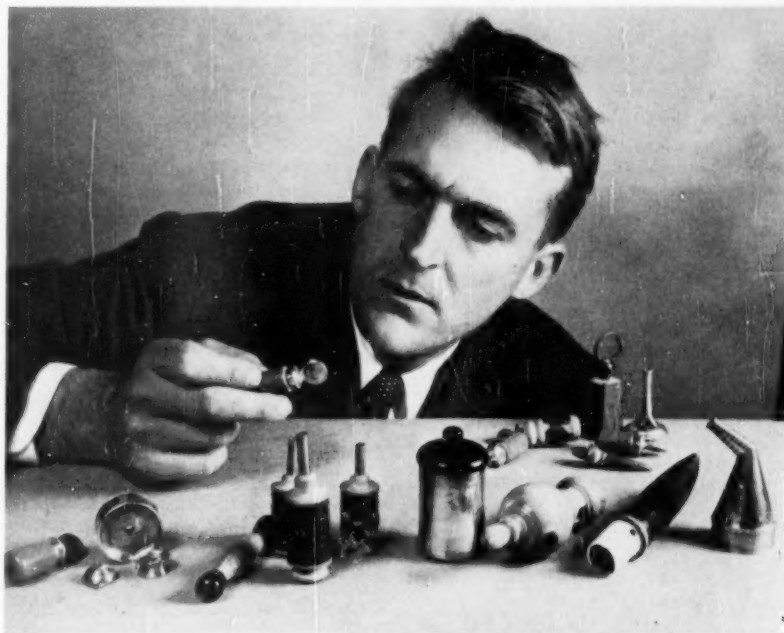
The rose-breasted grosbeak was one of the birds attracted by Mr. Eddy himself. His 5-year-old daughter, Heidi, has been very successful with the devices, Mr. Eddy said proudly. The thing will chirp, squeak or sing and it will stun a cat

or a canary into deep though momentary silence. Robins and grackles tend to ignore it.

Mr. Eddy said he had received reports of an oven-bird, as well as bluebirds, brown thrashers, orioles,

various warblers and many other varieties, responding to the teasing sound of his birdcall. It requires no musical ability, though in careless hands it will make a sound like chalk scraping along a blackboard.

Roger Eddy, who developed the Audubon Bird-Call. Photograph, courtesy of the New York Times.



Reprinted from the Asbury Park Sunday Press, Nov. 2, 1952

HE PUTS 100,000 BIRDS TO BED

**Henry Bennett Guards
Huge Flock of Ibises
In Florida Sanctuary**

By William F. Sandford

Henry Bennett's job isn't a run-of-the-mill occupation. He puts 100,000 birds to bed every night.

Protection of a major part of the country's population of white ibises is only part of the job of the Long Branch High School graduate who is now the Audubon Society's warden in the Duck Rock sanctuary in Florida. In summer it is his responsibility to guard one of the greatest concentrations of birdlife in the East from the poaching which has been practiced in the area for a century; and in winter there are the society's wildlife tours in which he guides tourists through the nature-rich Everglades National Park.



Photograph of Henry Bennett, courtesy of Asbury Park Sunday Press.

Stresses Conservation

Through it all he carries on what he feels to be his most important job, that of public relations representative—convincing natives and visitors of the importance of the conservation work being done in Florida and urging their cooperation.

Mr. Bennett described the spectacle of 80,000 to 100,000 ibises streaming into a four-acre island at sunset, as one that makes visitors gasp. By nightfall Duck Rock is covered with an almost unbelievable concentration of the great white birds, roosting shoulder to shoulder and layer upon layer on the branches of the mangrove trees.

As warden for the area, Mr. Bennett has a special responsibility in this almost fabulous concentration of birds. A poacher could do more damage with one shotgun blast here than a whole army of them working all day under ordinary conditions. *Continued on Page 47*



A pileated woodpecker joins the bird onslaught against bark beetles. Back in 1937, bark beetles infested Engelmann spruce in the Kootenai National Forest of Idaho. At that time, woodpeckers also destroyed the overwintering brood so effectively that entomologists predicted very little reinfestation would occur. Photograph of pileated woodpecker by Allan D. Cruickshank.

Above—Drawing of Engelmann spruce bark beetle, *Dendroctonus engelmanni*, from U.S. Department of Agriculture Yearbook, 1952.

The white grubs, or larvae, of the Engelmann spruce beetle hatch in summer from eggs laid by the adult beetles under the bark. They feed on the inner bark tissue and, if numerous, will girdle and kill the tree. Photograph, courtesy U.S. Forest Service.



BEETLE ROUT



IN THE ROCKIES

One of the most devastating insect scourges ever to blight the Rocky Mountains has brought our woodpeckers new acclaim.

By Harold Olson*

WOODPECKERS are giving bark beetles "the works" in Colorado spruce forests these days. One of the most frightening insect scourges in Rocky Mountain history is slowly being brought under control. A constant cannonading, reminiscent of brisk rifle fire, comes from thousands of woodpeckers—downy, pileated, California, Alpine three-toed, hairy and others—drilling for beetles buried under the bark of infested Engelmann spruces. Billions of beetles are being devoured in a "bird saves man's crop" exploit that parallels to some extent the California gull rescue of the crops of Mormon settlers in Utah from "Mormon crickets"*** in 1848.

For timber owners, the work of woodpeckers in curbing this menace, aided and abetted by man-contrived measures and a timely killing frost, has been providential. In a little more than a decade an avalanche of insects has made a shambles of the White River National Forest in Colorado, where losses may exceed eight million cords of wood. Withered spruces stand in an ever-widening radius under the onslaught. Picturesque summer playgrounds—among the most beautiful in the world—

were blighted when the insects took over. Even jobs were in jeopardy.

That's why Colorado timber owners say today that nothing like the beetle mopup has happened since the Utah grasshopper episode a century ago. The Mormons were desperate when grasshoppers mowed down their crops and so were Coloradans when the bark beetles attacked their forests. For timber is a crop today and represents a considerable investment. Consequently, woodpeckers are being praised as the "Tree Farmer's Best Friends." They are heroes of conservation warfare in the twentieth century. All of which must be most gratifying to admirers of a bird family that has grown nimble ducking rocks pelted at it, has been shot at, and erroneously denounced as a "tree killer" by people who failed to understand the habits and usefulness of these birds.

The bark beetle plague started in 1939, when heavy windstorms upset numerous shallow-rooted spruce trees. These became breeding grounds for the bark beetles which launched a timber attack that for several years appeared unstoppable. Then a combination of incidents—an alliance with man by weather and the woodpeckers—contrived to slow down the rampaging insects and set the stage for a "Sunday," or knockout punch.

Man took the initiative first, while the woodpecker population started to increase with this new source of food supply. Two years ago, federal foresters threw the first roadblock in the path of the beetles when teams of sprayers, scrambling over steep

* Mr. Olson is on the staff of American Forest Products Industries, Inc., an organization whose primary interest is the promotion of sound economic forest practices and the development of better public understanding of private forest enterprises. A number of educational materials are available through the national headquarters at 1319 18th Street, N.W., Washington, D. C.

** Also called "coulee cricket" in the West, this insect is not a true cricket, but is a species of long-horned grasshopper, *Anabrus simplex*. Mormon "crickets" range westward, from western Minnesota and Colorado, to the Sierra Nevada Mountains of California and the Cascades of Oregon and Washington. Hawks, blackbirds, sage thrashers and other birds, in addition to gulls, feed on the adult Mormon cricket, and other birds eat this insect's eggs.—The Editors



↑ From 1940 to 1946, the Engelmann spruce beetle destroyed one-fifth of the Engelmann spruce timber in Colorado, or about one million dollars' worth of trees each year. All of the Engelmann spruce, shown in this U.S. Forest Service photograph, are dead. In an experiment to control bark beetles, government entomologists discovered that certain species attack only the less vigorous and older trees. By selective cutting, to eliminate trees most susceptible to beetle attacks, losses in the test areas were reduced 90 per cent in the year following.

Under the bark, the grubs overwinter and develop into adults in August of the following summer. These adult beetles emerge and move to the basal trunk and root collar of the spruce trees. Here they hibernate through the winter. Emerging the following June and July, they kill trees when they bore into the bark to mate and lay their eggs. Photograph, courtesy U.S. Forest Service.

slopes, doused more than a million infested trees with orthodichlorobenzene and other insecticides. The beetles knew they had been hit but it didn't snuff them out.

Then nature took a hand. On February 1 and 2, 1951, temperatures dropped to as low as 56 degrees below zero in some Rocky Mountain localities. The killing cold seeped through the bark of diseased trees killing beetles and grubs by untold billions. Only those beetles insulated by warm blankets of snow drifts around the base of trees survived. And snow was piled high that winter on Rocky Mountain slopes.

Arrival of spring found foresters pondering how to best blast these frostbitten beetles saved by their snow "comforters." The beetles were sluggish and less active as a result of the freeze but foresters knew that warm weather would bring them swarming out again.



That was when the real woodpecker onslaught began. Slowly but surely, the woodpecker population—lagging behind the big insect epidemic in the beginning—had been building up until now there was as many as a pair of them an acre in some regions. Led by the numerous downies, hairies and Alpine three-toed woodpeckers, the birds gripped the bark of trees with their sharp claws, and with spiny tail-feathers serving as a brace, hunted out the beetles with infallible keenness.

Two unique tools serve woodpeckers well in ferreting out hidden beetles. These birds don't have to drill deeply to get them, because they have tongues that can reach an inch or more beyond the beak to spear the beetles in their bark galleries. The tongue is long in its own right and also has an extension of two wire-like bones in a sheath around the woodpecker's skull. A barb on the end of each woodpecker's tongue means that grub that can be reached is a goner. At times, according to reports from the spruce country, the bird brigades had their "air hammer" beaks going in a staccato beat that resembled the roll of snare drums.

When did woodpeckers start receiving a measure of credit for their beetle mopup operations? First tip-off was dropped in November, 1951 when Avery S. Hoyt, Chief of the U. S. Bureau of Entomology and Plant Quarantine, announced that "frost, spraying, and woodpeckers appear to have broken the back of the beetle infestation."

Subsequent field investigation has served to bolster that conclusion and by last fall entomologists reported that, apparently, woodpeckers had been instrumental in helping to break the back of the epidemic in 36 of 54 check areas. Eighteen areas remained to be investigated and foresters hoped results would prove equally good there.

However, experts like Dr. Noel D. Wygant, entomologist in charge of the government bureau at Fort Collins, Colorado, say that woodpeckers alone would not have been enough to curb the beetles.* Unquestionably, the birds have been the most

important biological control factor and in some areas have destroyed up to 75 per cent of the beetle population. But for some inexplicable reason, the woodpecker population did not build up in some infested areas and here it was necessary for man to effect the cleanup.

"We have little explanation on the failure of the bird population to build up in some areas," Dr. Wygant said. "In one instance such an area was not more than two miles from a heavy woodpecker population. Our thought is that the woodpeckers remain in an area a year or more after the outbreak passes on, feeding upon the secondary bark beetles and wood borers that work in the dead trees. In other words, the front of the woodpecker population is one to two years behind the beetle front. On the other hand, the woodpeckers converge from all sides upon a small outbreak and the beetle population never gains force."

Citing that four factors have been at work in curbing the epidemic—woodpeckers, other biological factors, low temperatures and man—Dr. Wygant said that it was impossible to say which has been the most important, which clearly shows that more research is needed not only to determine the exact degree of woodpecker aid, but to enable man to make maximum use of woodpecker assistance in any future epidemics.

"In any event, man holds the trump card because his efforts can be directed to those areas where the other factors are not doing an adequate job of stopping an epidemic," Dr. Wygant said.

At first, some people doubted that the woodpecker cleanup was as effective as reported. These doubters have since capitulated as evidence

piled up. Entomologist Calvin L. Massey, at Fort Collins, Colorado, said: "In some areas woodpeckers may eradicate as much as 75 per cent of the live brood of beetles; in individual trees, close to 100 per cent. Even a slight amount of woodpecker work reduces the population by nearly half. This is caused by excessive drying out of bark around the areas worked by the birds."

"How do you know woodpeckers actually search out and eat the beetles?" one questioner asked Massey. The entomologist had the answer for that one, too. Studies of the winter food habits of woodpeckers by Frank T. Hutchison showed that approximately 90 per cent of the food of the birds consists of Engelmann spruce beetle larvae.

One thing is certain. As reports of woodpecker assistance continue to come in from specialists like Dr. Wygant, Philip C. Johnson, of the Bureau's Coeur D'Alene, Idaho, office, Calvin D. Massey, and others, the fact stands out that these often maligned birds have an important function in life which serves man in his task of growing crops of trees for present and future generations of Americans.

"My analysis has convinced me that these birds have hardly been given any recognition for the wonderful job they are doing," said Ernest L. Kolbe, forester for the Western Pine Association. "In the past year I have discussed this situation with leading entomologists in our western states and they agree to a man that woodpeckers play an important part in holding bark beetles in check and in bringing beetle outbreaks back to normal."

Sometimes it takes a crisis to show us who our real friends are.

THE AUDUBON MEDAL

In May, 1946, at a meeting of the Board of Directors of the National Audubon Society, it was proposed that the National Audubon Society originate a medal for distinguished, individual service to conservation. The medal was to be awarded, from time to time, to persons whom the Board feels have accomplished outstanding work in conservation.

At a meeting in September, 1946, the Board agreed upon these principles, and subsequently engaged the noted sculptor, Paulanship, to design the medal.

The bronze medal has now been awarded to four men; in 1947 to Dr. Hugh H. Bennett, at that time Chief of the Soil Conservation Service; in 1949 to Dr. Ira N. Gabrielson, President of the Wildlife Management Institute, formerly Director, U.S. Fish and Wildlife Service; in 1950 to Mr. John D. Rockefeller, Jr., for his great contributions to our system of national parks, and, in 1952, to Mr. Louis Bromfield for his leadership in conservation through conservation farming, writing, and lecturing.

* There is also equal evidence, in these plagues of insects, that weather and other natural checks upon them, will not alone control these outbreaks. It seems that birds, mammals, weather, other insects, insect parasites and diseases, all working together, are usually required to reduce them effectively.—THE EDITORS

Winter Roosts of Birds

"Last winter I happened upon a roost of rough-legged hawks."
Photograph by Hugh M. Halliday.



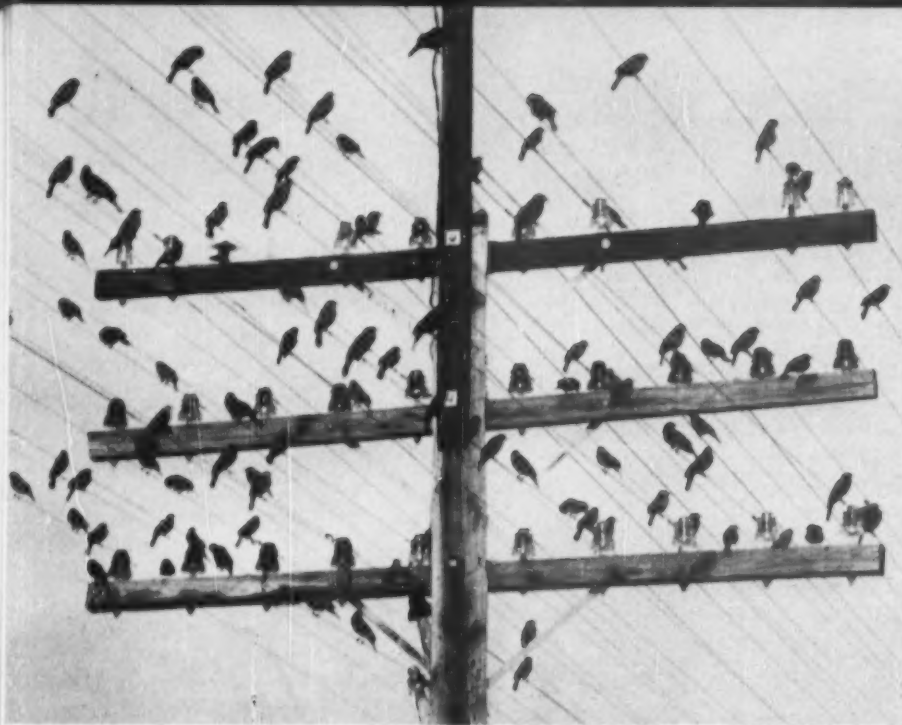
By F. J. Freeman

IN SOME of our observations of birds, we may enjoy a flock of geese winging across the sky, a wood thrush singing its evening song, the sight of a cardinal, a patch of vivid red against the blue-shadowed snow—all these may catch our eyes or ears for the moment. But what of the individual bird that, fleetingly, attracts our attention? What is its year-around life like? What is its complete history? Of this we have but scant knowledge.

Birdlife in the summertime seems to be idyllic and even the summer nights may seem not to hold especial terrors. But of the long flight to their winter home and of their days and nights there, we have only fragmentary and general information. What of our own wintering birds and their winter nights? Do we know very much more about them?

For some years, here in Illinois, I have had opportunities to watch the winter roosting habits of certain birds. It is my opinion that many species seek, insofar as it is possible, a place similar to that in which they were nested. There are many exceptions to this, but I believe it to be generally instinctive. Many of our winter residents are hole-nesting birds, and I believe most of them "hole-up" for the night. This is true of woodpeckers, chickadees, nuthatches, house sparrows, and perhaps, sparrow hawks. I have seen house sparrows crawl into nooks and crannies that one would think could interest only a mouse. Occasionally bluebirds winter over, and I remember reading about a dozen or more bluebirds wintering in Minnesota that, each night, crowded into a bluebird box. This has its counterpart in an account of 11 brown creepers which habitually spent the night in a cavity in a beam of a barn. The opening was quite small, and it took quite a while for the creepers to enter. There was "much moving in and out, flying back and forth, and climbing around the beam, nearby wall and trees before everybody was settled for the night."* Probably not

*"Life Histories of North American Nuthatches, Wrens, Thrashers and Allies," by Arthur Cleveland Bent, U. S. National Museum Bulletin 195.



"For some years I have watched the winter roosting habits of birds." Photograph of flock of red-winged blackbirds by Allan D. Cruickshank.

all creepers are so fortunate and some undoubtedly take shelter from the storm and night under a loose strip of bark where they habitually nest. Woodpeckers, it is commonly known, excavate a cavity for a winter roost. Late one November day, I saw a downy woodpecker thus employed on a poplar stump.

For ground-dwelling birds the story is different. In T. Morris Longstreth's book, "Knowing the Weather," he states, "A man standing in a foot of snow may be breathing zero air, while at his knees the temperature may be six degrees below, at his shins at the snow's surface 14 degrees below, and at his toes where the air has been kept warm by the snow, 14 degrees above." Such conditions might hold true during a calm, but if a strong wind were blowing it might *feel* 20 degrees colder although the closer to the ground, the less strong the wind, owing to the retarding friction of the earth's surface. So the closer to the ground and the more out of the wind a bird can be (if that is its nature), the better for it. Ptarmigans of the north country bury themselves in the snow, and perhaps our wintering horned larks, longspurs, meadowlarks and Hungarian partridges dig down into the snow and get into the lee of the wind behind some tuft of growth or hummock of

ground. Pheasants also may thus seek shelter, although I have found them roosting in evergreens and willows like so many chickens.

Juncos, tree sparrows and cardinals—birds that like a brushy habitat—probably seek shelter from the wind in very brushy growth. One of the favorite roosting places of small birds is a cattail marsh, and pheasants, too, like these places. I recall one fall during late migration that I walked through such a place. Bluebirds and song sparrows had settled down for the night and one song sparrow sang his summer song in whispered tones as though in memory of warmer, greener days. Deep in the woods of a forest preserve, where I conducted a winter bird census, is a rather large cattail marsh. At about the same time each afternoon a small flock of juncos approached the woods flying from the southwest across a pasture. At the northeast corner of the pasture they entered the woods and filtered through the trees towards the marsh, there to spend the night deep down among the dried rushes, out of the wind.

Crows roost in the treetops, and hawks do the same to a certain extent. One of the most interesting and picturesque sights of winter is a flock of crows coming into its roost—black crows and black trees sil-

houetted against a vivid sunset and blue sky of a winter's evening. They come in a long stream from some location where they have previously gathered, some performing aerial acrobatics, and finally settling down into the treetops with much shifting about. Just about the time one thinks they are settled for the night, the whole flock boils up in a black mass and commences over again the process of settling down. One such evening which lengthened into a brilliantly moonlit night found the crows still milling around and finally flying off into the moonlight. Eleanor Halbrook Zimmerman caught the beauty of their flight in her poem, "At Winter Dusk," when she wrote: "The crows whirl upward like dull smoke

Against a lemon-colored sky
Till night leans down and with a stroke

Pencils out their noisy cry,
Restoring silence to the snow,
And birds to branches, row on row."

Last winter I happened upon the roost of a flock of rough-legged hawks. This was situated in a group of five old apple trees left standing in an otherwise cultivated field. Driving home in the evening about the time when motorists start to turn on their lights, I noticed this group of trees silhouetted against the evening sky. I saw two hawks perched in the trees and, on approaching, made them out to be rough-legged hawks. As I watched, three more hawks alighted, and a sixth drifted by, still hunting. After a short while, three of the hawks left the roost and flew east to hunt over the darkening fields. Finally they came back, one by one, and settled in the trees for the night. Rough-legs fly later in the day than most hawks, and are easily mistaken for owls as they fly over the fields in the twilight. On the other hand, the short-eared owl which often hunts in the daylight may sometimes be mistaken for a hawk.

Evening after evening I watched and counted the rough-legged hawks as they came in to roost, and on January 31, I counted a total of eight birds on the roost. Some evenings upon arriving early, I found the hawks perched on fence posts at quite some distance from the trees, while awaiting the approach of dusk. On one such evening, the crows were flocking in the field, prelimi-

nary to their flight into their own roost, and the hawks were quietly waiting, unmolested, on the fence posts. That particular evening, after the crows had left, the hawks deserted their regular roost, after several of them had first gone to it, and seven of them settled in another grove of trees near a farm house. The eighth was still on the wing by the time I left.

Such hardy birds as crows and hawks seem to be able to stand the bitter cold and the wind of winter in the treetops, but occasionally it becomes too much for them. Such was the experience of the hawks. On February 14, we had the worst glaze storm of 15 years. As ice accumulated on the trees, the night was made horrible by the cracking and crashing to earth of over-burdened branches. The next evening I drove by the hawk roost and found only one bird there. Underneath the trees was a pile of branches which had fallen the night before. I can imagine what a hard time the hawks must have had with branches breaking off around them and perhaps from under them, and their difficulty

in finding new perches on the ice-laden branches. After that night the roost was deserted.

One winter day I called on a woman who lived on a country estate. She was a dignified, cultured woman of wealth, who liked birds and maintained a feeding station outside her breakfast-nook window. Hers was a very exclusive station at which only the nicer birds fed. There were no house sparrows or starlings—only chickadees, nuthatches, juncos, woodpeckers, and other *100 per cent American birds*. When I talked to her about her birds, she told me about a couple of strange, sparrow-like birds that had been roosting each night against her house. One roosted in an empty flower pot, the other in a gutter under the overhanging edges of shingles. These unknown birds had seal-brown crowns without any striping, yellow bills, and plain gray breasts. She was much puzzled as to their probable identity and had looked through her bird guides for them in vain. The closest bird to them, she said, was the grasshopper sparrow, which does not winter here, and is, besides, a

bird of the open fields. She thought they were "cute" and noted how they came to roost each night at the same time. Once, three came and they had a "knock-down-and-drag-them-out-fight" on the floor of the porch to see who would get the flower pot.

I got my Peterson's guide from the car and we looked at the color plates of sparrows, but could not find what she had seen. Finally I saw the bird I thought she had been seeing and showed it to her, with my thumb over the male bird and hiding the name.

"That's it!" she exclaimed.

I removed my thumb so that she could see the name *house sparrow* printed under the bird's illustration. "Oh, no! It couldn't be that. Why I know an English sparrow when I see one. I have seen lots of them in the city. No. They must be some other birds."

But they weren't "some other birds." They were English, or house, sparrows, and these hardy, adaptable birds had learned to spend their winter nights under the protection of her porch.

"It is my opinion that many species of birds seek to roost in a place similar to that in which they were nested." Photograph of marsh in winter by Allan D. Cruickshank.



How to Attract Birds



Are feeding stations shifting the wintering ranges of some birds? An experienced bird attractor discusses the interesting problems of

Those Reluctant Migrants

By John V. Dennis

EVERY fall in our northern states and in Canada, birds which normally should be winging their way to warmer lands settle down to winter amid snow and icy winds. For the most part they are birds ill-equipped to endure our northern winters. They are insect- and fruit-eating birds with plumage to match the sun-splattered tropical foliage. Against a background of snow and ice, they are as out of place as brightly colored flowers.

Sometimes the late straggler, still resplendent in black and orange plumage, is a Baltimore oriole. During the winter of 1950-1951, orioles were reported from 11 states and one province of Canada. Again it may be a late warbler at the mercy of cold and snow. A black-throated green warbler in the Bronx in January, a Cape May warbler in Ohio in late December, and an American redstart on a Christmas census in North Carolina are some of winter's most unexpected guests.

Who would expect to find a rose-breasted grosbeak when one should be seeing evening grosbeaks? Yet there is a late December record for Connecticut. And of all birds, a flycatcher would seem as hopelessly out of place as any against a wintry landscape. Yet a least flycatcher was recorded on a Christmas census in Rhode Island and a crested flycatcher was seen in January as far north as

South Carolina. One winter there were several records of eastern kingbirds occurring from Maryland southward. And among the highly migratory thrushes whose winter home is in Central and South America, gray-checked, olive-backed and wood thrushes have been recorded in winter as far north as New York and Ohio.

Indeed a careful search through the *Audubon Field Notes* and other ornithological publications reveals that there are winter records from the United States and Canada for nearly every species which normally winters to the south of us. And also of much interest, but in a slightly different category, are the large number of half-hardy species which seem to winter just as far north as weather conditions permit. Among them are many ducks, shorebirds and songbirds. Not unknown to feeding station operators as far north as Ontario and the New England states are such abundant winter residents of our southern states as the brown thrasher, catbird, mourning dove, ruby-crowned kinglet, white-throated sparrow, and song sparrow. Half-hardy birds of another type, whose northward range is largely determined by the amount of ice-free water, are the belted kingfisher, great blue heron, black-crowned night heron and pied-billed grebe.

Size and sturdiness seem to have little to do with a bird's ability to survive northern winters. The tiny

chickadee, as we all know, is one of the birds most at home in cold weather. Among the half-hardy species are such seemingly frail birds as the winter wren, the eastern phoebe, the myrtle warbler, and the common yellowthroat. These tend to stay along the seacoast where the climate is milder, and bayberries are plentiful. Some turn up at feeding stations.

If the winter is mild, many of the half-hardy birds survive. Of the mild open winter of 1948-1949, Ludlow Griscom, writing in the *Audubon Field Notes*, says: "In the East, an incredible variety of birds wintered farther north than ever previously recorded. Even stragglers belonging in the tropics were scattered all over the United States in late December. . . . Orioles and chats survived all winter in southern New England, over 30 species of waterfowl were reported in January on the unfrozen ponds of southern Massachusetts. . . . Mockingbirds wintered in Nova Scotia and New Brunswick and a wintering American bittern was reported in Nova Scotia!" (Turn to Page 38)

A rose-breasted grosbeak stayed in Connecticut until late December. Photograph by Allan D. Cruickshank.





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Low temperatures alone are not a hazard if food is plentiful, but when snow and ice cover sources of food, birds beyond the normal limits of their winter range have little chance of survival. During most winters, for example, the coastal region of Rhode Island offers a climate mild enough and a food supply plentiful enough to support a relatively large population of southern stragglers and half-hardy species. But during the severe winter of 1947-1948, Mr. Roland C. Clement, Executive Director of the Rhode Island Audubon Society, reported a marked decline among several half-hardy species. Of seven eastern towhees on Jamestown Island only one was left after a period of bad weather. Carolina wrens, which were quite plentiful in the South Kingston region, were reduced 90 per cent. All over Rhode Island there was a drastic reduction in the number of bobwhites. Mr. Clement has since written me that there has been a noticeable increase among Carolina wrens. This has taken place with subsequent milder winters.

If feeding stations are available, many birds which otherwise would perish, last out the severest winters. With artificially placed food available to them, many mourning doves now regularly winter as far north as Michigan and the New England states. Robins are not uncommon in winter in our northern states, but several which spent the winter at Duluth, Minnesota, probably would have perished if it had not been for feeding stations. Feeding stations made possible the successful wintering of a Carolina wren at Madison, Wisconsin, a Cape May warbler at Morgantown, West Virginia, a yellow-breasted chat at Portsmouth, New Hampshire, and a pair of cowbirds in Aroostock County, Maine. A successful wintering by a hermit thrush in Ohio is described in the *Audubon Field Notes*. "The effectiveness of a feeding station in preserving the life of a bird in winter was demonstrated by Dr. and Mrs. Harshorn in Toledo, to whose yard a hermit thrush came on December 22. The bird was supplied with raisins, slices of apple and a little suet. It remained vigorous through the cold wave when other out-of-season birds vanished, and departed on March 13, 83 days later, presumably on migration."

It should be remembered that most southern stragglers feed exclusively upon fruits and insects, and, therefore, would be unhelped by grain or seeds. It is necessary to provide peanut butter, suet, nut meats, and even sliced oranges and bananas for the fruit- and insect-eating birds. Some feeding station operators pick wild berries in the fall and store them in the deep freeze for just such emergencies. One operator discovered that an orange-crowned warbler liked jam, not just any jam, but jam from a pie.

It must not be imagined, however, that birds are pampered into staying north of their usual wintering grounds. For most birds the habits of migration are so deeply ingrained that they leave before they are obliged to, either because of cold weather or failing food supply. The migrants which do tarry, for reasons which are not at all clear, wander about the countryside, and are not likely to show up at a feeding station until the sudden blast of win-

ter forces them to seek out a plentiful food supply. Thus in our northern states December sees the largest number of unusual birds about homes and feeding stations. Many of those stragglers which are not so fortunate to find food and shelter, die. That is why birding in late winter is often so unrewarding.

Birds linger beyond the migration period in summer as well as in winter, but the number which stay behind in summer is small. Only among gulls, shorebirds, and some of the other water birds do a significant number remain south of their breeding grounds. These appear to be almost entirely non-breeding immature birds. With land birds, the urge to return to the breeding grounds is so strong that nothing short of serious illness or injury seems to detain them. It is difficult to find any records at all for summering migrants in our southern states and regions to the south. Mr. Francis M. Weston, who has completed 36 years of intensive field

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The Timid Soul : : : : : BY H. T. WEBSTER



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observations in the Pensacola, Florida region writes me that in all this time he has discovered only two examples of summering by land birds of species which nest much farther north. One was a male bobolink, apparently uninjured, seen on July 10, 1938. The other was a white-throated sparrow, with some question as to its ability to make extended flight, seen throughout the summers of 1946 and 1947. Alexander Skutch with many years of experience in Central America writes me that his only records of summering by non-aquatic birds which breed farther north were a barn swallow seen on July 3, 1939, roosting with native swallows on a beacon in Puntarenas Harbor, Costa Rica, and a sparrow hawk with missing tail feathers in June and early July, 1943, also in Costa Rica.

The question as to why certain birds among species with well-developed migratory habits fail to migrate is an intriguing one. In the fall many factors may be involved. There is the possibility that an increasingly warmer climate has to some extent inhibited the instinct to migrate. Then, too, there may be a reluctance to leave the breeding grounds to which, if we employ human terminology, there are perhaps sentimental ties. Both in spring and in fall, an important reason for the failure of birds to migrate lies in certain physical failings and handicaps to which birds as well as other animals are subject. Aside from obvious defects such as a broken leg or wing, we do not know what role, if any, avian diseases or parasites play. Nor do we know if birds are subject to impairment or defect of faculties needed to launch them upon migration or sustain them on course once migration has begun.

As is so often true in nature, an answer to one problem seldom fits all. Certainly it would be unreasonable to attribute all the many winter records of Baltimore orioles and yellow-breasted chats to physical defects. It is only recently that the chat has taken to wintering in small numbers throughout much of its breeding range and actually somewhat to the north of it. Observers in New England during the last 10 years have recorded more and more chats wintering in regions where the bird is rare or unheard of in summer. The tendency of the Baltimore

oriole to winter within its breeding range seems to be a recent one also.

We can surmise that changes such as these may be due to a bird's ability to modify its migratory behavior to meet new situations. If an improved food supply and a warmer climate permit a few southern stragglers to survive the winter in the north, then it seems logical to assume that more and more birds among the successful species will remain behind. In time, through such a process, the entire migratory behavior of a species might be drastically altered. Such a development would necessarily be slow, and we can predict that most birds will continue to perform long and arduous migrations along the time-honored routes of their ancestors, even though conditions farther north have changed so as to favor the survival of a wintering population.

Whether the late migrant is a bird with a physical handicap or might be a trial in one of nature's ever-continuing experiments, we will always get excited over its appearance in our yard or at the feeding station.

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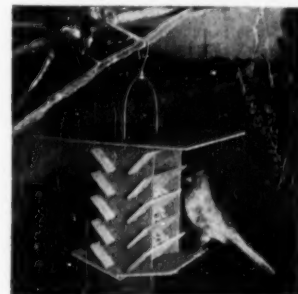
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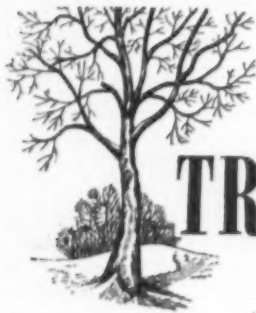
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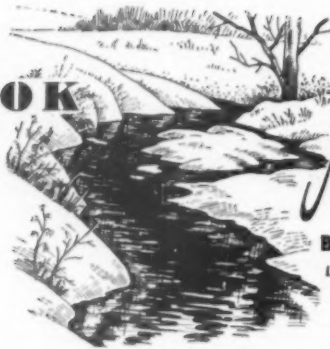
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BOOK



Notes

By Monica de la Salle

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The publication of "The Whooping Crane," Research Report No. 3, by the National Audubon Society is a thorough job by its author, about one of the rarest and most interesting birds in the world. We believe that it merits a much longer review than those book notes we usually give space to. We are pleased that Dr. Robert Cushman Murphy, Curator of Birds, American Museum of Natural History, has generously provided us with his review which we consider a distinguished analysis of a report that should be a powerful force in aiding one of our vanishing species.—The Editors.

THE WHOOPING CRANE

By Robert P. Allen, Research Report No. 3, The National Audubon Society, New York, 1952. 8 x 10½ in., 246 pp. Illustrated with photographs and line drawings. Indexed. \$3.00.

Anyone reading this admirable study must breathe a prayer that Bob Allen has accomplished something more than a coroner's inquest. If it turns out that he has, mankind will be eternally indebted to the investigator, to the National Audubon Society, and to its collaborators in the project.

It is astonishing to learn how little we have known about a magnificent and historically famous North American bird. Putting the matter another way, we have suffered from an even worse form of ignorance, namely what Josh Billings once called "knowing too much that ain't so." For it now appears that the whooping crane was never abundant (unless in the pre-human, Pleistocene period of our continent), that it is not normally a flocking bird, and that the relatively dry upland country favored at times by the sandhill crane is not a suitable habitat for the whooper on either nesting or wintering ground. Much traditional information linked up with the subject of this monograph proves, in fact, to be a result of confusing the species with its smaller cousin. A great bulk of testimony from pioneer ornithologists was on this point open to suspicion, or even palpably faulty.

The thorough and painstaking nature of Allen's report, the digesting of an extensive literature, the wide, adventurous and hazardous travel of the author from the Gulf to the Arctic, the patient and ingenious research at the sole remaining winter range, and the organization of effective teamwork, are

all suggested by the round hundred subdivisions of the table of contents.

The chapters deal first with the cranes of the world and then, *in extenso*, with the whooping crane itself. Lengthy parts are successively devoted to distribution, abundance (past and present), migration, food habits, winter life, breeding cycle, molts and plumages and, finally, to the prospects of survival. Useful appendices, a bibliography of some 500 titles, and an index complete the text.

Much of Allen's book is more detailed than the biography of a less important bird would justify. His listing on 13 quarto pages of all known "occurrences" of the whooping crane between 1722 and 1948 is an example. He derives, however, convincing conclusions regarding the life history pattern from statistical data of this kind, and his methods establish a standard that may be applicable to studies of other threatened organisms. Furthermore, each of his chapters ends with a comprehensive summary of its thesis that, as regards soundness and urgency, would make sense even to a politician.

The whooping crane is a relatively primitive or generalized member of its family, more aquatic in its predilections than most other modern cranes. It also eats a considerably higher proportion of animal food. There may have been not more than 1,400 examples of the species on the whole continent in early times, that is, to 1860. The distribution was wide, but the flyways rather restricted. The bird traveled mainly in groups of family size, although spring aggregations as numerous as 50 have been known, as contrasted with sandhill crane flocks of scores of thousands. Whooping cranes require marked isolation, occupy 3,000 acres or more as the

breeding area of a single pair, and up to 500 acres in winter quarters. Aggressive family territorialism is a year-round characteristic. There are now about 24 of the birds left alive, all of which winter inside a range of 10,000 acres in the Aransas Refuge on the Texas coast.

Allen's restraint in recounting the shooting and egg-collecting of the past is all the more devastating because he allows the facts to point their own moral. His word picture of the Texas marshes as they were only two generations ago is enough to fill a naturalist with bitter nostalgia. He observes clearly, and he knows how to transmit what he sees. His drawings of dancing and other crane behavior are better than the product of nine out of ten current "bird artists"; they would delight Audubon and the old Japanese masters. He has added greatly to his earlier laurels. Let us hope that a job so well done may lead toward a recovery from the present pitiful nucleus of whoopers, even though the net increase for a long time to come can hardly be expected to exceed one crane every three years.

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Audubon Field Notes fills a niche in American ornithological literature that is occupied by no other journal. As source material for studies on the changes that have been wrought in our bird populations by natural or human causes, it is invaluable, and this value will constantly increase as the years go by. My first contribution to the study of birds was a Christmas Bird Census published in the 1911 volume of *Bird-Lore*, and since that time I have participated in many of these seasonal surveys.

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JOURNEY INTO WONDER

By N. J. Berrill, Dodd, Mead and Company, New York, 1952. 5½ x 8½ in., 338 pp. Illustrated by the author. Indexed. \$4.00.

Indeed this is a journey into wonder—the story of man's discovery of the earth, of explorers and the seven seas. Those who have read "The Living Tide" will remember Mr. Berrill's gift for blending scientific facts with fine storytelling. His new book has the same qualities, combining history and natural history in a lively and informative manner.

FLEAS, FLUKES, AND CUCKOOS; A STUDY OF BIRD PARASITES

By Miriam Rothschild and Theresa Clay, Philosophical Library, New York, 1952. 6 x 8½ in., 304 pp. Illustrated. Indexed. \$8.75.

It would seem that a book devoted to bird parasites could have only the most limited appeal, the subject being so specialized, if not actually repulsive to some. Ignorance, however, is often the reason for our prejudices; as soon as we get information, especially from authorities in the field who can write for the layman, our indifference vanishes and an interest is aroused which may soon amount to fascination. A distinguished naturalist once wrote, "Birds are not only birds but aviating zoological gardens." The life histories of these parasites are so little known, and so amazingly complicated, their forms and structure so beautiful and so strangely organized, that the usual disgust the words "lice," "worms," "flies," or "fleas" evoke is forgotten. The authors are world authorities on bird parasites, and this latest addition to the British "New Naturalist" series is an unusually entertaining scientific work and will be of extraordinary interest for ornithologists and zoologists, as well as for amateur naturalists.

A FIELD GUIDE TO THE SHELLS OF THE PACIFIC COAST AND HAWAII

By Percy A. Morris, Houghton Mifflin, Boston, 1952. 4½ x 7½ in., 220 pp. Indexed. \$3.75.

This is the companion to the "Field Guide to the Shells of Our Atlantic and Gulf Coasts," published last year in the Peterson Field Guide Series. Like its predecessor, it is well illustrated with color and black and white photographs. Included are de-

tailed descriptions of each species with information on habitat and distribution, and lists of common and scientific names.

THE SAGE GROUSE IN WYOMING

By Robert L. Patterson, Game and Fish Commission, Sage Books, Inc., Denver, Colorado, 1952. 6¼ x 9¼ in., 341 pp. Illustrated with sketches by Charles W. Schwarz, and with photographs. Indexed. \$5.00.

This scientific report is the product of research begun in 1940 with Federal Aid to Wildlife Restoration funds under the Pittman-Robertson Project and sponsored from 1948 to 1952 by the Wyoming Game and Fish Commission. It is the first comprehensive account of the decline and subsequent restoration of the sage grouse, emphasizing land-use activities as related to grouse abundance, distribution, productivity, and management. A life history of the bird is included as well as population data.

BRITISH BIRDS IN COLOUR

Advising editor, R. S. R. Fitter, Odhams Press, Ltd., London, England, 1952. 10 x 7¼ in., 192 pp. Illus. with 108 plates in color from John Gould's "The Birds of Great Britain": photographs by E. J. Hosking, G. K. Yeates and others. Indexed. 21 shillings. Approx. \$3.00.

If it were only for the superb reproduction of John Gould's plates, this volume would be well worth its low price. In addition to these, photographs, and an authoritative and descriptive text provide information in an enjoyable and readable form. There are chapters on bird-watching, habitats, migration, habits, and eggs of British birds and their protection in the British Isles.

TREES; A GUIDE TO FAMILIAR AMERICAN TREES

By Herbert S. Zim and Alexander C. Martin, Simon and Schuster, New York, 1952. 4 x 6 in., 160 pp. Illustrated. Indexed. \$1.00 (cloth \$1.50).

This latest addition to the excellent Golden Nature Guides will help the beginner identify 150 of the most common North American trees. Colored pictures show characteristic tree shapes, with details of twigs, buds, barks, leaves, seeds and flowers. Small maps indicate their distribution.

WATER; A STUDY OF ITS PROPERTIES, ITS CONSTITUTION, ITS CIRCULATION ON THE EARTH AND ITS UTILIZATION BY MAN

By Sir Cyril S. Fox, Philosophical Library, New York, 1952. 10 x 6¼ in., 148 pp. Indexed. \$8.75.

The first of a projected series of books on water supply, this treatise deals primarily with the importance of the problem of control and use of water by a treatment of its practical aspects. After defining the constitution and physical properties of water, the author outlines its distribution on the earth (as well as the meteorological factors involved), erosion of the land surface, deposition of sediments and pollution. The huge land-reclamation projects in the United States are discussed.

ALL AROUND YOU: A FIRST LOOK AT THE WORLD

By Jeanne Bendick, Whittlesey House, New York, 1951. 10¼ x 7½ in., 48 pp. Illustrated. \$2.00.

Young children will enjoy this picture book which describes in simple words the why and how of the world. An astonishing amount of information is given on all aspects of natural history from astronomy and meteorology to botany and zoology.

GOOD HEALTH FROM GOOD SOIL

By Louis M. Thompson and Ivah E. Green, Wm. C. Brown Company, Dubuque, Iowa, 1951. 8½ x 7 in., 80 pp. \$1.25.

This excellent little book has a personal approach that will appeal to children everywhere, although it was written primarily for Iowa's rural schools. Easily read, and always interesting, it stresses soil conservation as a means of maintaining good health.

AUDUBON'S BUTTERFLIES, MOTHS, AND OTHER STUDIES

Compiled and edited by Alice Ford, Thomas Y. Crowell Company, New York, 1952. 7½ x 10 in., 120 pp. \$5.75 (de luxe edition \$7.50).

For many years a few Audubon specialists were aware of the existence of an Audubon sketchbook consisting of 15 pages of insects and reptiles drawn in watercolor in their natural size, done in Louisiana between the years 1821 and 1823. In the course of her research for "Audubon's Animals," Miss Ford suc-

ceeded in tracing the sketchbook to its present owner. All the drawings included are now being published for the first time, part of them in color, part in black and white. The quality of the reproductions is superb and shows the exquisite technique of the artist. Moreover, Miss Ford has not limited her discussion to the sketchbook but has enlarged the scope of the book to include the rather complicated history of the background details in the plates for the "Birds of America"—insects, reptiles and plants—for which Audubon frequently had the collaboration of other artists; and she has covered as well the origin of the science of entomology in this country. An authority on American art and a researcher of painstaking conscientiousness, she has made in this volume an important contribution to the study of Audubon.

EAGLE MAN; CHARLES L. BROLEY'S FIELD ADVENTURES WITH AMERICAN EAGLES

By Myrtle Jeanne Broley, Pellegrini & Cudahy, New York, 1952. 5½ x 8¼ in., 210 pages. \$3.50.

Before Mr. Broley, a retired Canadian banker, started to band eagles some years ago, very little was known about their migration. Pursuing his dangerous avocation, he has to date banded over 1,200 eagles and at the same time has given publicity to the necessity of protecting these magnificent birds. The author has made of her husband's adventures an interesting and entertaining book. There are some inaccuracies, however, as well as a good deal of "guesswork" in the interpretations of eagle behavior. Carried away by his enthusiastic devotion, Mr. Broley seems to favor the destruction of great horned owls and other predators which occasionally disturb nesting eagles.

THE CONSERVATION YEARBOOK 1952; A DIRECTORY AND GUIDE TO FACTS, FIGURES AND PEOPLE IN AMERICAN CONSERVATION

Edited by Erle Kauffman, *The Conservation Yearbook*, 1740 K Street, N. W., Washington 6, D. C., 1952. 8½ x 11 in., 288 pages. Indexed. \$5.00.

This new publication is an "Information Please Almanac" of conservation, covering legislation, organizations, statistics, personnel, etc.

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• MAINE

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• CONNECTICUT

At the Audubon Nature Center, a beautiful 420-acre sanctuary near Greenwich, Conn.

Five sessions in the summer of 1953, as follows:

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Monday, June 29th through Saturday, July 11th	Conservation Course
Monday, July 13th through Saturday, July 18th	6-day Course in Nature for Primary Teachers
Monday, July 27th through Saturday, August 8th	Conservation Course
Monday, August 17th through Saturday, August 29th	Conservation Course

• CALIFORNIA

At Sugar Bowl Lodge, Norden, California, close to Donner Summit and just off the main highway from Sacramento to Reno.

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July 1st.....	July 14th	July 29th.....	August 11th
August 12th.....		August 25th	

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New School Sanctuary

"Taught to the Rule of the Hickory Stick," as well as other sticks, plants and wildlife, is taking on a new meaning for the pupils of the Edgemont Junior High School in Westchester County, N. Y., with the establishment of a 70-acre wildlife sanctuary near the school, now used for an outdoor laboratory as part of the regular school curriculum. Not to do things by halves, that school has also employed Irwin Engel as Outdoor Education Teacher to direct the nature and conservation program at this sanctuary and integrate this program with the school's indoor class work.

Mr. William G. Moyle, Supervising Principal of the school, and Mr. Dudley Hallock of the Community Committee on Education, have worked for more than two years to start this far-seeing nature and conservation education program for this

YOUR Children

By Shirley Miller



Do your children help to feed the birds? One of the best ways to get your child interested in birds is to let him assume the responsibility for the feeding station.

school. The land was acquired partially by purchase and partially by gift, and "The Scenic Seventy" has already become a vital factor in the school's teaching program.

How to Finance a Local Project

Do you have a dream project in your Audubon Junior Club that only needs a little financing to get it off to a good start? The Franklin Street School Junior Club of Hempstead, L. I., dreamed of having a nature room, but where to get the money to start it?

Mrs. Helen Kroll, dynamic leader of this 150-member group, solved the problem by staging a Pet Show. The PTA appointed a committee of 10 to help her; the school principal authorized use of the playground for the event; Gaines Dogfood Company and many local stores contributed the prizes; the local radio and newspaper publicized the event gratis. There were many entries in various classes, including, "Dog With the Curliest Tail," "Dog With the Longest Ears," "Pet Most Resembling Its Owner," "Cat With the Longest Whiskers." Prizes for the largest and smallest pet in the show went respectively to a Great Dane



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and an ant. Ten cents admission was charged and \$25 was cleared for the dream project. This is being used to finance the lumber costs for shelving and cages for live exhibits (club members and fathers are contributing the labor), a work table and the nucleus of a nature library.

Where Does It All Lead?

"Why," we are asked from time to time, "Does the National Audubon Society put so much emphasis on its Audubon Junior Club program?"

The question had a graphic answer at the 48th Annual Convention of the Society last November, when five former Audubon Junior Club members, now actively connected with the Society's work, appeared on the program devoted to junior education work, and told how membership in these Clubs in their early years had resulted in their choosing the fields of conservation and natural history as their life work.

These five included Roger Tory Peterson, world famous artist, author and naturalist, who had flown back from his work in Europe on a new "Field Guide to the European Birds" to give the convention's opening address; Allan D. Cruickshank, the country's outstanding nature photographer, lecturer and author; Robert P. Allen, Research Director of the National Audubon Society; Henry P. Bennett, Audubon Wildlife Tour Leader and Warden, and William Fennell, prominent New York City attorney, now utilizing all his spare time in stimulating Audubon Junior Club enrollment in Westchester County, N. Y.

Weighing the cumulative accomplishments of this outstanding quintet would, alone, provide a most satisfactory and thrilling answer to our lead-off question.

Camp Fire Girls Stress Conservation as 1953 Birthday Project

Conservation is the core of the Camp Fire Girls' Birthday Project for 1953. It has become traditional for this organization to celebrate its birthday annually by giving special emphasis the whole year to activities grouped around a central theme of current interest. "And what," asks Miss Martha F. Allen, National Director of the Camp Fire Girls, "commands more current interest than conservation of our natural re-

sources? Our 1953 Birthday Project is titled "Down to Earth," and a project bulletin bearing this name has been issued to all our adult volunteer leaders, suggesting activities which will appeal to the girls, give them an awareness of the interdependence of all living things and a sense of personal responsibility for the safeguarding and wise use of our natural resources."

"Down to Earth" suggests four general avenues of approach for the girls' study of conservation, each one containing a variety of "down to

earth" projects for them to carry out. 1. *Private Real Estate*, emphasizes the importance of soil conservation. 2. *Round Trip to a Cloud*, deals with water. 3. *Earthbound Ventures*, suggests an investigation of current conservation activities in their own communities. 4. *Make Friends for Land's Sake!* lists actual conservation projects the girls can carry out themselves.

The March, 1953, issue of *The Camp Fire Girl* will be a special birthday number devoted to this whole subject of conservation.



Young Gary Shampang, Audubon Junior member from Pittsfield, Massachusetts, is proud of the barred owl that he nursed back to health. Photograph by Vera Fielding.

Nine Million Young Conservationists

In an article by this title in *The Kiwanis Magazine*, November, 1952, Earl Q. Marsing says:

"Today there are 10,000 Audubon Junior Clubs in North America alone, and the international organization has enrolled more than 9,000,000 members. . . .

"The aims of the Audubon Junior Clubs are simple, but of vital importance to the world: 1) To introduce children to the wonders of the outdoors, the fun of exploring their backyards, schoolyards, neighborhoods and nearby countrysides to discover the plants and animals living there. 2) To encourage children to be observant and enable them

to experience the joy of discovering the wealth of natural objects they can see, hear, feel, taste or smell. 3) To show children the interdependence between plants, animals (including themselves), and the soil, water and climate. 4) To help children understand the tremendous importance of plants, animals, soil and water to every living thing, including man. 5) To impress on children how man's interference with nature, whether through carelessness or ignorance, has already cost us vast quantities of vitally needed natural resources. 6) To help children understand how we can use and yet conserve our resources, while showing them what they can do to help. . . ."

You may get a free reprint of this complete article by writing to Audubon Junior Clubs, 1130 Fifth Avenue, New York.

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This Is Your Year to Get Friendly With Pine Siskins

By Irston R. Barnes*

Each fall there is lively speculation as to what northern birds will come as winter visitors. Last year there was the great flight of evening grosbeaks. The year before, the snowy owls came down from the Arctic. This fall, the news is that the pine siskins are our northern invaders. If you do not know them, this is your year to become acquainted.

For more than a month, pine siskins have been reported from every quarter. We hear their call notes as they fly overhead. They are feeding on the weeds along the fences. They are with the goldfinches among the tops of the sweet gum trees.

A few pine siskins are recorded each year, but this is only the second time in a decade they have been present in numbers. Like most northern wanderers, their invasions appear to coincide with a failure of food supplies elsewhere.

Their movements are erratic. We cannot predict when they will come, or in what numbers. When they do come, they are usually present before cold weather sets in. But unlike the evening grosbeaks, they may not remain until spring.

The pine siskin is easily overlooked. Many Audubon friends tell me they have never seen the bird, though we expect to record two or three on each Christmas count. So you may miss this interesting visitor unless you are looking for it in the right places.

Pine siskins are cousins of our common goldfinch, and about the same size. They have the finch's conical bill, only slightly longer and a bit more slender. They also have the general shape and appearance of the goldfinch, with its slightly notched tail.

The distinguishing mark of this bird is its heavy streakings, which give it a dark appearance. It is heavily streaked on the head and the back as well as on the underparts. A goldfinch in winter garb is olive green, unstreaked, with black tail and wings, the latter with conspicuous wing-bars.

The pine siskin also has two wing-bars, but they are not so conspicuous as its cousin's. It also commonly shows some yellow in the wings, around the base of its flight feathers, and also at

*This article by Dr. Barnes, who is president of the Audubon Society of the District of Columbia, is one of a series which he writes for the Washington Post. They are published each Sunday under the column title of "The Naturalist." We are pleased to report that more and more newspapers are running nature columns, in recognition of the growing interest in nature activities. Many such columns are written by members of local Audubon Societies. Does your newspaper have a nature column? If not, perhaps you will want to suggest it to the editor.—The Editors.)

the base of the tail. This feature may suggest the myrtle warbler, which is a common winter resident. However, myrtle warblers are darker, brown toned, with the slender, pointed bill of an insect-eating bird and their yellow patches on rump and sides are clearer and more easily seen.

The pine siskin is likely to be found with goldfinches, unless you find a large flock. It resembles the goldfinch in actions and habit as well as in general appearance. Look for it feeding on seeds where the weed stalks still stand in the fields or along the fence, or feeding on the dried seeds of sweet gum or ash. Its flight is suggestive of the goldfinch, and its call notes have something of the canary's sweetness.

When present only in small numbers, we frequently find the siskins by hearing their calls. The common call is a light, slurred double note, which Peterson describes as "cleep-lp" and which Forbush hears as "z-ing." The call is given both on the wing and while feeding, and is sufficiently different from the goldfinch notes, which you will do well to know, to be easily identified.

In the North, siskins eat insects and the seeds of conifers, and while with us, they will seek out the pitch pines. But they also consume the seeds of elms, maples (and box elders), alders and birches and they readily eat the berries of the honeysuckle, the junipers and other shrubs.

As the natural food reserves are used, the siskins may move on to new territories, or they may accompany goldfinches to feeding stations. At the feeding tray, siskins are often surprisingly

Twenty-two Whooping Cranes Return to Aransas

Twenty-two whooping cranes have returned to their wintering grounds in Texas, the National Audubon Society has reported. The present count, which was determined by an aerial survey conducted by the Fish and Wildlife Service, is one less than last year's total of 23 cranes. Only two young of the year have been identified, though further surveys may reveal that some of the others are young.

These stately white birds, all that remain of the original wild population, migrate from their breeding range in the far north to the Aransas Wildlife Refuge on the Texas coast.

At least two cranes fell to guns of law-violating gunners, as they made their annual flight toward Texas this fall, the co-operating conservation agencies reported.

One of the cranes was shot south of Regina, Saskatchewan. The U.S. Fish and Wildlife Service sent a plane from La Crosse, Wisconsin, hoping that the injured bird could be flown to San Antonio, Texas, where it would receive expert attention at

the San Antonio Zoo. Despite forced feeding of barley and milk and doses of penicillin, the crane died en route to Texas.

A day or two after the Saskatchewan incident, school children near Olathe, Kansas, found an injured whooping crane in a field and brought it to their school. The bird had been seriously wounded by illegal gunfire and died not long after being found.

John H. Baker, president of the National Audubon Society, said, "Each year it becomes more apparent that illegal hunting is the major factor in reduction of the numbers of whooping cranes and in increasing the threat of their extinction."

The continental whooping crane population now stands at 24, which figure includes two crippled captives at the Audubon Park Zoo in New Orleans. These are the birds that attempted unsuccessfully to raise young at the Aransas Refuge. So far they have not nested at the zoo, though officials reported that the birds performed some courtship dances.

OUR NEW ADDRESS

Persons writing to the National Audubon Society are reminded that the Society has moved to its new headquarters at 1130 Fifth Avenue, New York 28, N. Y. All mail intended for the Society and its four periodicals—Audubon Magazine, Audubon Field Notes, Outdoors Illustrated, and Audubon Junior News—should henceforth be sent to that address. The new Audubon House is located at the corner of 94th Street and Fifth Avenue. The telephone number is ENright 9-2100.

tame, even entering at open windows. They take the same seeds and other offerings that appeal to goldfinches.

The siskins are so erratic that individuals or small flocks may be seen south of the northern conifers where they nest at any season of the year. They are even erratic in their nesting, favoring one location for a season or two, and then moving far away.

NATURE IN THE NEWS

Continued from Page 29

Boat Is His Home

He works with a boat which is home from March until September. He ties up against the little island at the end of the day as the birds start coming into the roost from several directions, returning from their feeding grounds. Sometimes during the night there is a crash as a dead limb, overweighted with birds, crashes to the ground, and a whirl of wings that rises to a roar as 20,000 or more frightened birds rise into the air, then gradually settle down again.

At dawn a new procession, away from the island, starts, and in an hour and a half only the mangroves show again on Duck Rock. Then Mr. Bennett resumes his daylight tour in the cabin cruiser, patrolling the area and talking to other boatmen—especially those he knows to be poachers—about the importance of the work the society is doing.

Court Ruling Hailed

Last year Mr. Bennett arrested two poachers with dead birds, and was attacked by one of the men. The resultant widely publicized court case was a major test of conservation authority in Florida and the complete victory of Mr. Bennett and the Society was hailed as a major step forward in the interest of preservation of the state's wildlife.

After a business course at Monmouth Junior College, and an Army hitch, Mr. Bennett entered Miami University two years ago to continue his business studies. In his spare time he worked for Charles Brookfield, Florida Audubon representative, helping guide the nature tours, which he still does during the winter. The society's work proved so much more attractive than prospects of a business career that he quit school after a year to accept an Audubon post. He is a U.S. deputy game warden and also has a warden commission from the Florida Game and Fresh Water Fish Commission.

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LETTERS—Continued from Page 3

Sanctuary in a Cemetery

With a great deal of interest I read the letter in the July-August, 1952 issue of *Audubon Magazine* about using cemeteries as bird sanctuaries.

Here in Meriden we have one of the lovelier cemeteries in Connecticut. I have been on the Board of Directors for many years and fortunately a number of us on the Board are interested in bird sanctuaries and all they have to offer. For many years we have been making the Walnut Grove Cemetery into a real bird sanctuary.

We have accomplished this by planting the proper shrubs to provide natural foods for birds over the various seasons of the year, allowing normal natural growth in many parts of the cemetery to produce adequate and

proper cover not only for our native birds but those migratory birds passing through Connecticut. All in all, it has been a tremendous success. We have used literally tons of bird food in feeders throughout the cemetery during the 12 months of the year.

The treasurer of the cemetery association is really responsible for the success of the sanctuary to date. He is Lt.-Col. William H. Rybeck of the Infantry under whose supervision this work has been accomplished. We do not intend to stop here but to continue in our efforts with further purchase and placing of feed, birdhouses, birdbaths, and the further planting of shrubbery and trees. This has been done on a voluntary basis and I thought your readers would be interested in it.

ROY C. WILCOX
Meriden, Connecticut

Audubon Arm Emblem Features Egret

A flying white egret on a blue background has been adopted as the official arm emblem for members of the National Audubon Society, according to an announcement from the conservation organization's national headquarters in New York City.

The cloth emblem, which is four inches in diameter, will be worn by members on outdoor clothes in order to identify them on field trips and while taking part in various conservation projects sponsored by local branches of the National Audubon Society.

The egret was selected for the Audubon arm emblem because it has played an important part in the Society's history. When the founders met in New York City in 1905, egrets were being

slaughtered by the thousands at their rookeries in order to provide finery for ladies' hats.

The new Society launched an educational program which aroused public opinion. As a result, women refused to buy or wear wild bird feathers, and protective legislation was passed. Though then threatened with extinction, the beautiful and graceful egrets responded to the legal and warden protection afforded them and made a dramatic comeback; now they are again seen commonly in the northern states.

John H. Baker, president of the National Society, states, "A wearer of The Flying Egret is identified as one who is doing his part to help conserve our great heritage of natural resources."

Audubon Wildlife Tours

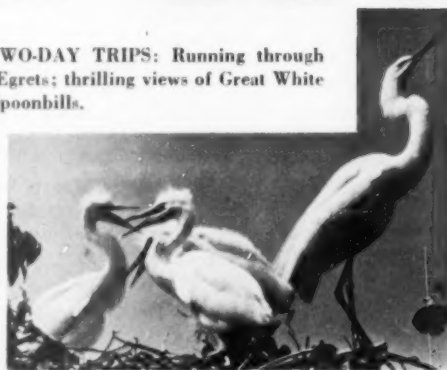


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The Audubon Program and You

THE National Audubon Society has just moved into its new headquarters. At a time when the tremendous growth in Audubon activities has required that we find more adequate housing, it is appropriate that we should examine the National Audubon Society's status and prospects.

Our Society has a larger annual operating budget than any other non-governmental organization in the conservation field. However, our resources are not adequate to finance certain projects which ought to be undertaken, to say nothing of needed expansion of some present activities. For example, we need funds to finance an Audubon program in the high schools comparable to the Audubon Junior Clubs in the lower grades. There should be an Audubon Camp or Center within easy access of everyone in the country. At present we have two regional offices. Many other areas should have the whole Audubon program "brought home" to them in this way. The list of needs could go on for many pages. So our Society is *not* adequately

financed in terms of the job that is waiting to be done.

We do have the largest endowment of any conservation organization—about \$2,400,000—and it helps to finance many of our most important activities. Consider, however, that the largest single college endowment in America is in excess of \$200,000,000! The total in gifts and bequests that has been contributed to the National Audubon Society and to all other conservation organizations is only a tiny fraction of that given to individual colleges, art museums, or other cultural institutions.

In the light of the foregoing, may we suggest that you consider the desirability of establishing "living memorials" through current gifts to the National Audubon Society that will make feasible the expansion of our constructive program for making this a better continent on which to live.

We also ask that our members and other friends give thought to remembering the Society in their wills. The recommended bequest form is on page 2 of this issue.



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THE FLYING EGRET

(to be worn by members only)

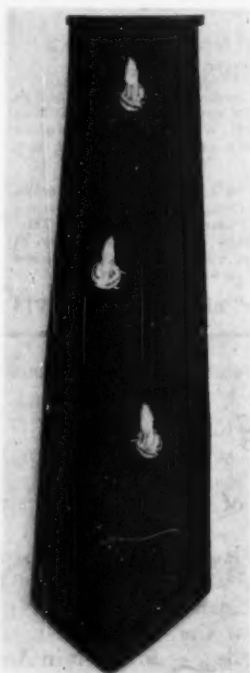
As a member in good standing of the National Audubon Society you are entitled to use the Audubon arm emblem which bears the same drawing of the American egret that appears on the Audubon flag. Wear your emblem proudly and tell everyone who inquires about it of the history and present work of your Society.

The emblem may be sewed to shirts or jackets.

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SERVICE DEPARTMENT

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